

**THE INFLUENCE OF COGNITIVE INTELLIGENCE, EMOTIONAL INTELLIGENCE, AND
PERSONALITY ON JOB PERFORMANCE: PROPOSING A MODEL
FOR PERSONNEL SELECTION**

by

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Submitted in accordance with the requirements for the degree of

Doctor of Philosophy

In the subject

Consulting Psychology

at the

University of South Africa

Supervisor: Professor M. Coetzee

August 2018


DECLARATION

I, PFUNGWA DHLIWAYO, student number 47191961, declare that, **“The influence of cognitive intelligence, emotional intelligence, and personality on job performance: Proposing a model for personnel selection”** is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

I further declare that I submitted the thesis/dissertation to originality checking software and that it falls within the accepted requirements for originality.

I further declare that I have not previously submitted this work, or part of it, for examination at Unisa for another qualification or at any other higher education institution.

I further declare that ethics clearance to conduct the research has been obtained from the Department of Industrial and Organisational Psychology, University of South Africa, as well as from the participating organisations. I also declare that the study has been carried out in strict accordance with the Policy for Research Ethics of the University of South Africa (Unisa). I took great care that the research was conducted with the highest integrity, taking into account Unisa’s Policy for Infringement and Plagiarism. The ethics clearance certificate to conduct the research has been attached as Appendix 1. The permissions certificate are attached as Appendix 2.



PFUNGWA DHLIWAYO

31 August 2018
Date

ACKNOWLEDGEMENTS

First, I want to acknowledge my Supervisor Professor Melinde Coetzee for her guidance, encouragement, and expertise which made this thesis possible. I also want to thank Professor Dries Schreuder for guidance during his time as my thesis supervisor. I give appreciation to Andries Masenge, who assisted with the statistical analysis. I also appreciate my wife, Precious for the encouragement and giving me the time to work on my doctorate. Our twins, Kunashe and Nokutenda, I appreciate their patience.

I want to thank, Calvin Nhari, Bonomali saidi, Edwin Nharirire, Cleopas Chiketa, Simbarashe Mazani, Ronald Chisingarambwe, and Cynthia Kahari for assistance with data collection. I also acknowledge organisations which allowed me access and approved use of their people and other resources to assist me to carry out my research. I also thank all participants for the study, without whom the research would not have been possible.

Above all, I thank God the Almighty, to whom I devote my existence.

ABSTRACT/SUMMARY

THE INFLUENCE OF COGNITIVE INTELLIGENCE, EMOTIONAL INTELLIGENCE, AND PERSONALITY ON JOB PERFORMANCE: PROPOSING A MODEL FOR PERSONNEL SELECTION

By

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DEPARTMENT : Industrial and Organisational Psychology

DEGREE : PhD in Consulting Psychology (Industrial and Organisational Psychology)

This research sought to propose a personnel selection model encompassing the influence of cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality on job performance. Using a quantitative cross-sectional research design, the researcher investigated the interrelationships between the variables relevant to the study using a convenience sample of N = 299 that consisted of Zimbabwean supervisory and professionally qualified and experienced specialists of different ages and genders, and from different job tenures, and job types. To get a true picture of the relationships between the predictor and criterion variables, the interaction (moderating) effects between the sociodemographic variables (age, gender, job tenure, and job type) and the predictor variables (cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality) in predicting the criterion of job performance were also examined.

The researcher used correlational and inferential multivariate statistical analysis (structural equation modelling, regression analyses, and tests for significant mean differences) to test the research hypotheses. The results from the study indicated that cognitive intelligence was the best predictor of job performance, followed by ability emotional intelligence, and then by personality. Trait emotional intelligence could not account for any variance in job performance. The results showed significant interaction effects between personality and job tenure (judging-perceiving personality types) and job types (extraversion-introversion personality types) in predicting job performance. Significant sociodemographic mean differences in the levels of the predictor variables were also identified. The identified predictive powers of the variables, the interaction effects between the identified sociodemographic and the predictor variables in predicting job performance, and the significant sociodemographic mean differences in the levels

of predictor variables need to be considered for personnel selection practices in order to understand the nature of variables that may enhance or inhibit job performance. From a theoretical perspective, the research advanced personnel selection theory by empirically and scientifically identifying the core elements of personnel selection, and proposing a personnel selection model for use by industrial psychologists and organisations.

KEY TERMS

Cognitive intelligence; ability emotional intelligence; trait emotional intelligence; personality; personnel selection; personnel selection model; job performance; organisational citizenship behaviour; task performance; emotional labour.

**ṬHUṬḤUWEDZO YA VHUKONI HA MUHUMBULO NGA U ANGAREDZA, VHUKONI HA U
DZHIELA ṆTHA NA U LANGULA VHUPFIWA, NA VHUDIFARI KHA KUSHUMELE
MUSHUMONI: U DZINGINYA TSHIEDZA KHA MAITELE ANE A SHUMISWA HU TSHI
THOLWA VHASHUMI**

Nga

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MANWELEDZO

Ṭhōdisiso heyi i ṭōḁa u dzinginya tshiedza tsha maitele ane a shumiswa hu tshi tholwa vhashumi ane a katela ṭhuṭḥuwedzo ya vhukoni ha muhumbulo nga u angaredza, vhukoni ha u dzhiela ṇtha na u langula vhupfiwa, vhukoni ha u dzhiela ṇtha na u langula vhupfiwa kha zwithu zwine zwa fana, na vhudifari kha kushumele mushumoni. Hu tshi khou shumiswa maitele a ṭhōdisiso a n̄dila yo dzudzanaho ya u kuvhanganya na u saukanya data u bva kha zwiko zwo fhambanaho, u guda zwine zwa khou itea kha tshigwada nga tshenetsho tshifhinga, muṭōdisisi o ṭōdisisa vhushaka vhukati ha zwithu zwine zwa fhambana zwo teaho kha ngudo, hu tshi khou shumiswa sambula ya vathu vhane zwa leluwa u vha swikelela $N = 299$, i katelaho vhaṱoli na vathu vha re na ndalukano dza mushumo na vhomakone vha re na tshenzhelo vha vhukale ho fhambanaho, mbeu, tshifhinga tshe vha shuma na tshaka dza mushumo kha vathu vha Zimbabwe. U wana tshifanyiso tsha vhukuma tsha vhushaka vhukati ha zwithu zwine zwa khou humbulelwa na zwithu zwo ḁisendekaho nga zwiṱwe, ṭhuṭḥuwedzo ine ya itea khathihi vhukati ha zwithu zwiṱhili hune u t̄angana hazwo zwa vha na ndeme khulwane u fhirisa zwipiḁa vhukati ha zwiṱaluli zwa vathu (vhukale, mbeu, tshifhinga tshe vhashuma, lushaka lwa mushumo) na zwithu zwine zwa khou humbulelwa (vhukoni ha muhumbulo nga u angaredza, vhukoni ha u dzhiela ṇtha na u langula vhupfiwa, vhukoni ha u dzhiela ṇtha na u langula vhupfiwa kha zwithu zwine zwa fana, na vhudifari) kha u humbulela n̄dila dza kushumele mushumoni na dzone dzo ṭōḁuluswa.

Muṭōdisisi o shumisa khorileshinala na siṱatisiṱiki tsha iniferinshiala maṱithivareithi musi a tshi khou saukanya (tshiedza tsha siṱatisiṱika, maitele a siṱatisiṱika a u humbulela vhushaka vhukati ha zwithu, na u linga ndeme ya phambano ya siṱatisiṱika) u linga u vhonela phanda kha khonadzeo ya ṭhōdisiso. Mvelelo u bva kha ngudo dzo sumbedzisa uri vhukoni ha muhumbulo nga u angaredza ho vha tshishumiswa tsha kushumele, ha tevhelwa nga vhukoni ha u dzhiela ṇtha na u langula vhupfiwa, ha fhedzisela nga vhudifari. Vhukoni ha u dzhiela ṇtha na u langula

vhupfiwa kha zwithu zwine zwa fana a vhu khwaṭhisedzi phambano kha kushumele mushumoni. Mvelelo dzo sumbedzisa tshanduko ine ya vha hone kha tshithu tshithihi i ḡitika nda ndeme ya tshiṅwe tshithu vhukati ha vhuḡifari na tshifhinga tshe vha shuma (mihumbulo ine ra vha nayo ri tshi sedza zwithu na ṅḡila ine ra tshilisa ngayo ḡuvha ḡṅwe na ḡṅwe) na tshaka dza mushumo (na tshaka dza vhuḡifari dzo sedzaho nga ṅḡḡa na nga ngomu) kha u humbulela kushumele. Ndeme ya phambano vhukati ha zwigwada zwivhili zwa matshilisano na vhathu kha zwithu zwine zwa khou humbulelwa na zwone zwo dovha zwa topolwa. Zwithu zwo topolwaho zwine zwa khou lavhelelwa, zwithu zwivhili zwo ḡiimisaho nga zwoṭhe zwi tshi ṭangana arali ṭhuṭhuwedzo ya tshithu tshithihi i tshi fhambana yo ḡitika nga vhuimo ha zwiṅwe zwithu vhukati ha zwithu zwa matshilisano na vhathu na zwithu zwine zwa khou humbulelwa, ṭhoḡea dzine dza tea u dzhielwa ṅṭha kha maitele ane a shumiswa hu tshi tholwa vhashumi u itela u pfesesa lushaka lwa zwithu zwine zwa nga engedza kana u thivhela kushumele. U bva kha mihumbulo ine ya khou ṭoḡisiswa, ṭhoḡisiso yo ṭuṭuwedza thyeori ya maitele ane a shumiswa hu tshi tholwa vhashumi nga u sedza na u topola zwithu zwa ndeme zwa maitele na milayo ya sainthifiki, na u dzinginya tshiedza tsha u thola vhashumi u itela u shumiswa nga vhaḡivhi vha muhumbulo vhane vha shuma na kutshilele na kushumele kha zwiimiswa.

.

MATHEMO A NDEME

vhukoni ha muhumbulo nga u angaredza, vhukoni ha u dzhiela ṅṭha na u langula vhupfiwa, vhukoni ha u dzhiela ṅṭha na u langula vhupfiwa kha zwithu zwine zwa fana; vhuḡifari; maitele ane a shumiswa kha u thola vhashumi; tshiedza tshine tsha shumiswa kha maitele a u thola vhashumi; kushumele; vhuḡifari ha vhashumi mishumoni; kushumele kha mushumo we wa ṅetshedzwa; u langula vhupfiwa nga vhashumi.

**DIE INVLOED VAN KOGNITIEWE EN EMOSIONELE INTELLIGENSIE ASOOK
PERSOONLIKHEID OP WERKPRESTASIE:
‘N VOORGESTELDE MODEL VIR PERSONEELKEURIN**

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OPSOMMING

Hierdie navorsing het gepoog om 'n model vir personeelkeuring te ontwikkel op grond van die invloed van kognitiewe intelligensie, vermoë- emosionele intelligensie; eienskap- emosionele intelligensie en persoonlikheid op werkprestasie. Die navorser het 'n kwantitatiewe dwarsnitnavorsingsontwerp gebruik, en die onderlinge verbande tussen die toepaslike veranderlikes ondersoek. Die geriefsteekproef van $N = 299$ het bestaan uit Zimbabwiese toesighoudende, opgeleide en ervare spesialiste van verskillende ouderdomme en uit beide geslagte wat verskillende dienstydpere agter die rug het, en uiteenlopende poste beklee. Om 'n getroue beeld van die verbande tussen die voorspeller- en kriteriumveranderlikes te kry, is die interaksie- (modererende) effekte tussen die sosiaal-demografiese veranderlikes (ouderdom, geslag, dienstydpere en soort werk) en die voorspellerveranderlikes (kognitiewe intelligensie, vermoë- emosionele intelligensie; eienskap- emosionele intelligensie en persoonlikheid) in die voorspelling van die kriterium van werkprestasie ook ondersoek.

Die navorser het 'n korrelasie- en afgeleide, meerwisselende statistiese ontleding (strukturele vergelykingsmodellering, regressieontledings en toetse vir betekenisvolle gemiddeldeverskille) gedoen om die navorsingshipotese te toets. Die uitslag van die studie toon dat kognitiewe intelligensie die beste voorspeller van werkprestasie is, gevolg deur vermoë- emosionele intelligensie en persoonlikheid. Eienskap- emosionele intelligensie kon geen rekenskap van enige veranderlike in werkprestasie gee nie.

Volgens die resultate is daar betekenisvolle interaksie-effekte tussen persoonlikheid en dienstydpere (keurder-waarnemer persoonlikheidstipes) en die soort werk (ekstroversie-introversiepersoonlikheidstipes) in die voorspelling van werkprestasie. Betekenisvolle sosiaal-demografiese gemiddeldeverskille in die vlakke van die voorspellerveranderlikes is ook aangedui. Die voorspellende kragte van die veranderlikes, die interaksie-effekte tussen die

sosiaal-demografiese en die voorspeller veranderlikes in die voorspelling van werkprestasie sowel as die beduidende sosiaal-demografiese gemiddelde verskille in die vlak van voorspeller veranderlikes moet vir personeelkeuringspraktyke in ag geneem word om die aard van veranderlikes wat werkprestasie kan verhoog of inhibeer, te verstaan. Uit 'n teoretiese oogpunt het die navorsing die persoonkeuringsteorie gevolg deur die kernelemente van personeelkeuring op 'n empiriese en wetenskaplike wyse aan te toon, en 'n personeelkeuringsmodel vir bedryfsielkundiges en organisasies aan te bied.

SLEUTELTERME

Kognitiewe intelligensie; vermoë- emosionele intelligensie; eienskap- emosionele intelligensie; persoonlikheid; personeelkeuring; personeelkeuringsmodel; werkprestasie; organisasieburgerskapgedrag; taakprestasie; emosionele arbeid.

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CHAPTER 1: SCIENTIFIC OVERVIEW OF THE RESEARCH

The aim of the study was to propose a personnel selection model encompassing the influence of cognitive intelligence, emotional intelligence, and personality on job performance. Research participants were employees at supervisory level and professionally qualified and experienced specialists from Zimbabwean private and publicly listed organisations. Chapter 1 outlines the scientific overview of the research, which includes the background to and motivation for the study. This chapter also outlines the problem statement and discusses the paradigm perspectives for the study, providing the context for the literature review, the research design and the research method. The chapter ends by outlining the division of chapters for the study.

1.1 BACKGROUND AND MOTIVATION FOR THE RESEARCH

The context of this research is personnel selection in the Zimbabwean organisational environment. More specifically, the study focused on proposing a model for personnel selection encompassing the influence of cognitive intelligence, emotional intelligence (ability and trait), and personality on job performance, as well as the moderating/interaction effects of age, gender, job tenure, and job type in that relationship. Organisations achieve their results through people. One of the functions of industrial and organisational psychologists is to ensure that organisations meet their performance expectations through people. Thus, in regard to the issue of personnel selection, it is essential to ensure that the right people are chosen to fill positions in order to achieve organisational imperatives, through optimal job performance (Caldwell, Beverage, & Converse, 2018).

It is important at this point to define the terms 'personnel selection', 'personnel selection model', and 'job performance', since these are the key meta-theoretical concepts for the study. Personnel selection is the process of choosing the most suitable candidate for a job vacancy (Afshari, Nikolić, & Čoćkalo, 2014). Caldwell et al. (2018) add that personnel selection involves selecting people who can add to the economic value of an organisation through optimal job performance capability. Moscoso, Salgado, and Anderson (2017) describe personnel selection in terms of the people qualities required and point out that the objective of personnel selection is to determine whether or not job candidates have the qualities such as motivation, problem-solving capacity, behavioural skills, human relations skills, as well as the necessary job experience, to perform the job. The ultimate objective of personnel selection is to find the best person who can quickly assimilate into the organisation's culture and produce the best performance within the shortest possible time (Moscoso et al., 2017). Since organisations achieve their objectives through people, one would conclude that the process of personnel

selection becomes a critical exercise aimed at ensuring the best person-job fit (Moscoso et al., 2017). Thus, in this research, the focus was on predicting (as part of the personnel selection process) a prospective employee's optimal job performance capability by assessing factors shown to influence individuals' capability to perform a job.

In their seminal works, Borman and Motowidlo (1993) and Motowidlo (2003) define job performance as the engagement of behaviours aimed at meeting the task requirements that contribute to the value of the organisation. The concept of job performance is essential for this study because it is an important criterion which personnel selection models are designed to predict (Joseph & Newman, 2010; O'Boyle et al., 2011). For the present study, job performance criteria included task performance, organisational citizenship directed towards the individual (OCBI), and organisational citizenship behaviour directed towards the organisation (OCBO) (Williams & Anderson, 1991). Conceptualising job performance from a multi-criteria perspective for the study was expected to provide more insight into the relationship between multi-predictors and job performance criteria. Thus, the job performance scale of Williams and Anderson (1991) was the job performance measure utilised for the study. According to Williams and Anderson (1991), task performance refers to in-role behaviours that lead to the accomplishment of the technical core of the job. On the other hand, OCBI consists of extra-role behaviours directed at assisting fellow workers in achieving their goals, and OCBO refers to extra-role behaviours which employees engage in to assist the organisation to meet its objectives (Williams & Anderson, 1991).

In trying to predict job performance, organisations may use more than one personnel selection method or measure (Joseph & Newman, 2010). A personnel selection model comprises multiple personnel selection methods and measures (predictors of job performance) utilised at the same time in order to predict job performance (Ployhart & Schneider, 2012). For the present study, the personnel selection model consisted of three components, that is, predictor variables, the criterion, and the sociodemographic variables. Job performance criteria have already been discussed in the preceding paragraph. Predictor variables comprised cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality, which have been found to be good predictors of job performance (Joseph & Newman, 2010; O'Boyle, Humphrey, Pollack, Hawver, & Story, 2010). The third component of the personnel selection model consisted of the sociodemographic variables of age, gender, job tenure, and job type, and their potential moderation of the relationship between predictor variables and job performance criteria. Moderation or interaction effects occur when another variable changes or modifies the quality and strength of the relationship between an independent and a dependent variable (MacKinnon, 2011).

A meta-analysis done by Joseph and Newman (2010) suggests that a personnel selection model should meet some criteria. First, the personnel selection methods or measures in a personnel selection model should significantly predict job performance. Second, the various personnel selection methods or measures in a model should be distinct from each other from a construct point of view, because clear construct definition assists in avoiding redundant personnel selection methods and measures in a model (Joseph & Newman, 2010). In line with the literature review, the researcher classified the personnel selection models into two categories. The researcher labelled one group of personnel selection models as 'Efficiency Personnel Selection Models'; these aim to achieve efficiency in personnel selection by automating the decision-making processes (Kaluginaa & Shvyduna, 2014; Shehu & Saeed, 2016). The researcher labelled the other category, 'Predictive Personnel Selection Models'; these use regression techniques to determine the predictive power of personnel selection methods or measures (O'Boyle et al., 2011).

Research suggests that the predictor variables for the present study, consisting of cognitive intelligence, emotional intelligence (ability and trait) and personality, are theoretically distinct psychological constructs (Joseph & Newman, 2010; O'Boyle et al., 2011). Since the present study sought to propose a personnel selection model encompassing the influence of cognitive intelligence, emotional intelligence (ability and trait) and personality on job performance, the proposed model can be classified as a predictive personnel selection model. As mentioned in the preceding paragraph, the inclusion of the aforementioned predictor variables derives from major meta-analyses conducted in the past decade by O'Boyle et al. (2011) and Joseph and Newman (2010), which suggest that cognitive intelligence, emotional intelligence, and personality have been found to be some of the best and most valid predictors of job performance. In line with the foregoing argument, cognitive intelligence, emotional intelligence, and personality become important constructs and antecedents of job performance and are thus worth investigating in a study that seeks to determine the relationship between predictor variables and job performance, with the view to inform personnel selection.

Understanding the different predictive power of the predictor variables that make up a personnel selection model requires the investigation of the predictor variables and their relationship with job performance in a single study. Prior research, for example studies conducted by Abraham (2004), AlDosirya, Alkhadher, AlAqraa, and Anderson (2016), Cote and Miners (2006), Lam and Kirby (2002), McNulty, Mackay, Lewis, Lane, and White (2016), Murensky (2000), Tofighi, Tirgari, Fooladvandi, Rasouli, and Jalal (2015), Sony and Mekoth

(2016), Wolff, Pescosolido, and Druskat (2002), and Wong and Law (2002), investigated the relationship between either one or two of the predictor variables of cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality and job performance. This presents a gap in research since it may be difficult to compare the predictive power of the different constructs investigated in separate studies using different methodologies and different conceptualisation of variables. Others, for example O'Boyle et al. (2011) and Joseph and Newman (2010), have tried to use meta-analysis to investigate the relationship between cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality and job performance. However, the aforementioned meta-analyses still suffer the methodological pitfalls of using different studies to arrive at a conclusion on variables.

From a practical point of view, the present study sought to provide Zimbabwean and perhaps African organisations with a model for personnel selection. The practical relevance emanates from the brain drain that has characterised the Zimbabwean labour market, especially between 1998 to the present, as the country experienced an economic recession (Nguwi, 2014b). Signs of economic growth, coupled with the pressures of globalisation have left organisations with the difficult task of identifying competent employees who can effectively meet the required organisational performance targets through optimal job performance capability (Nguwi, 2011). According to Nguwi (2014a), Zimbabwean organisations ought to use scientific personnel selection methods or models in line with good practice. This study sought to bridge the gap by proposing a personnel selection model that encompasses the influence of cognitive intelligence, emotional intelligence (ability and trait), and personality on job performance. The next paragraph expounds on the Zimbabwean economic environment and its possible impact on personnel selection practices.

Between 1999 and 2008, the Zimbabwean economy declined with an average year-on-year gross domestic product (GDP) of -6.8% (International Monetary Fund, 2017). The International Monetary Fund (2017) further reports that the GDP for Zimbabwe peaked at 16.3% in 2011, before declining to 0.8% in 2017. The GDP is currently projected to grow at a negative rate between 2018 and 2022, reaching -0.9% in 2022 (International Monetary Fund, 2017). Against this background, Zimbabwe has experienced a significant brain drain since 1999, which has negatively affected both organisational performance and the training of students in tertiary institutions (Zhou, 2016). The problems of personnel selection range from failure to find suitable candidates for jobs, as well as issues related to employment malpractices in personnel selection (Dumbu & Chadamoyo, 2012). Zinyemba (2014) mentions high labour turnover, the brain drain, scarcity of skills and expertise in the labour market, and unemployment as the challenges bedevilling Zimbabwean organisations. Dumbu and

Chadamoyo (2012) state that small-to-medium enterprises in Zimbabwe employ people through the assistance of friends and relatives based on personal-biased favouritism of the individual owners or managers. Nyamubarwa, Mupani, and Chiduuro (2013) state that the availability of skilled personnel in Zimbabwe is limited. They also argue that wrong selection may lead to organisations investing more in training and development and that this may negatively affect organisational efficiencies (Nyamubarwa et al., 2013). It is therefore crucial for organisations to find effective ways of selecting people who have the required level of job performance capability to counter such adverse outcomes. As part of efforts to counter the adverse outcomes mentioned above, the inclusion of cognitive intelligence, emotional intelligence (ability and trait), and personality, which have been found to be good predictors of job performance (Joseph & Newman, 2010; O'Boyle et al., 2011), is expected to provide Zimbabwean and other organisations with scientific measures for personnel selection. In addition, the multi-criteria approach to job performance may provide Zimbabwean and other organisations with insight into the nature and definition of job performance.

For a personnel selection model to be scientific, it should be fair and free of bias (Khorami & Ehsani, 2015). Thus, the personnel selection model should not discriminate against job candidates based on any factor other than the construct that it seeks to predict, which in this case is job performance. As mentioned earlier, job performance consisted of three constructs, namely, task performance, OCBI and OCBO. Research conducted by Parnell, Dent, O'Regan, and Hughes (2012) suggests that using a single criterion of job performance in a volatile environment like Zimbabwe may lead to spurious results, since good job performance may result from luck rather than from individual effort. Conversely, poor performance could also result from factors outside the employee's control (Parnell et al., 2012). On the other hand, Borman and Motowidlo (1993) also suggests that some organisational citizenship behaviours may not contribute to the economic value of organisations. Thus, including multi-criteria for job performance is expected to provide a wider insight into the relationship between predictor variables and job performance criteria, as well as the potential interaction between sociodemographic variables and the different job performance constructs.

There is a large body of evidence suggesting that cognitive intelligence, as measured by general mental ability, is perhaps the best predictor of job performance across most occupations (Bertua, Anderson, & Salgado, 2005; Carson & Lowman, 2002; Daly, Egan, & O'Reilly, 2015; Deary, Strand, Smith, & Fernandes, 2007; Gonzalez-Mulé, Mount, & Oh, 2014; Haro, Castejón, & Gilar, 2013; O'Connell, Hartman, McDaniel, Grubb III, & Lawrence, 2007; Ohme & Zacher, 2015; Salgado et al., 2003; Schmidt & Hunter, 1998). According to Carson and Lowman (2002), general intelligence or general mental ability refers to the ability to think

in abstract terms, reason, and solve complex problems. Lam and Kirby (2002) point out that general mental ability (general intelligence) is the ability to solve novel problems, while Gottfredson (1998) points out that general intelligence is inborn. Moscoso and Iglesias (2009) argue that hundreds of studies conducted over the past 80 years have confirmed the assertion that cognitive intelligence is the greatest single predictor of job performance than most, if not all, of the constructs. The inclusion of the cognitive intelligence variable in this study stems from research suggesting that ability emotional intelligence is as important as cognitive intelligence in predicting job performance (Cote & Miners, 2006). It is therefore part of the motivation for the present study to provide an insight into the predictive power of both cognitive and ability emotional intelligence on job performance. The concept of emotional intelligence is discussed next.

Although the concept of emotional intelligence dates back to the works of Thorndike (1920) when he identified a construct he called social intelligence, research around the concept has gained momentum over the past 20 years (Gooty, Gavin, Ashkanasy, & Thomas, 2014; Joseph & Newman, 2010). What seems confusing is that such research has been inconclusive because it has been met with mixed results (Abraham, 2004; Brody, 2004; Carmeli & Josman, 2006; Cote & Miners, 2006; Dan, Zhang, & Li, 2016; Dulewicz & Higgs, 2000; Goleman, 1997; Gooty et al., 2014; Lam & Kirby, 2002; Murensky, 2000; Tofighi et al., 2015; Wolff et al., 2002; Wong & Law, 2002).

There are at least three main plausible explanations for this. First, different studies used different conceptualisations of emotional intelligence, that is, the ability-based model of emotional intelligence (Mayer, Salovey, & Caruso, 2002), the mixed model of emotional intelligence (Bar-On, 2000), and the trait model of emotional intelligence (Schutte, Malouff, & Bhullar, 2009). Second, the studies employed different conceptualisations of job performance (contextual performance, versus task performance, versus performance simulations) (Christiansen, Janovics, & Siers, 2010; Cichy, Kim, & Cha, 2009; Dan et al., 2016; Farrelly & Austin, 2007; Lam & Kirby, 2004; Tofighi et al., 2015). Third, the studies were done in different contexts, for example different countries and cultures, with samples of different characteristics. Research should therefore simultaneously assess the influence of trait and ability emotional intelligence on job performance in one study, together with the influence of cognitive intelligence and personality on job performance in order to get the true nature of the relationship of the said variables.

Cote and Miners (2006) present one of the classic studies on the relationship between cognitive intelligence, emotional intelligence, and task performance. For the study by Cote and

Miners (2006), task performance was measured by a five-item scale adapted from McCarthy and Goffin (2001). Using the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), Cote and Miners (2006) propose a compensatory model where the relationship between emotional intelligence and job performance becomes more positive as cognitive intelligence decreases. They point out that individuals who are low on cognitive intelligence may benefit from high emotional intelligence because of high motivation, right decisions, and effective social interaction. Cote and Miners (2006) argue that the foregoing emotional intelligence competencies lead to better job performance in a majority of occupations. This conclusion implies that tests of emotional intelligence can then be used across occupations either as a substitute or a proxy for general mental ability, since emotional intelligence would, anyway, predict job performance with or without cognitive intelligence.

Although Cote and Miners' (2006) study seems to be a breakthrough with regards to the predictive power of emotional intelligence on job performance, they fail to comment on sociodemographic variables which may have moderating effects on the relationship between cognitive intelligence, emotional intelligence, and job performance. For example, their sample appears to have been biased in favour of occupations requiring soft skills or emotional. Yet extensive meta-analytic studies show that emotional intelligence is a better predictor of job performance in occupations requiring high emotional labour (Joseph & Newman, 2010, Joseph, Jin, Newman, & O'Boyle, 2015; O'Boyle et al., 2011). Emotional labour occurs when an employee displays specific emotions as part of their job (Lee, Ok, & Hwang, 2016; Miller, 2015). As part of efforts to address this seemingly methodological pitfall, the present study sought to contribute to theory and practice by investigating the differences in emotional intelligence between individuals occupying soft skills occupations, that is, high emotional labour jobs (Miller, 2015) versus technical occupations which do not require emotional labour. In addition, Cote and Miners (2006) do not comment on other variables like age, gender and job tenure that may have moderating effects on emotional intelligence (Joseph & Newman, 2010). As a result, further research is required to clarify the influence or moderation of sociodemographic variables on the relationship between cognitive intelligence, emotional intelligence, personality, and job performance.

With regard to personality, research has been founded on the five-factor model, otherwise known as the Big Five (conscientiousness, emotional stability, agreeableness, extraversion, and openness) (Furnham, Monsen, & Ahmetoglu, 2009; Hui-Hua & Schutte, 2015; Jiang, Wang, & Zhou, 2009; Joseph & Newman, 2010; Moscoso & Iglesias, 2009, O'Boyle *et al.*, 2011). Research suggests that of the five factors, agreeableness, conscientiousness, and emotional stability reasonably predict job performance better than the other two factors

(Joseph & Newman, 2010). Because of such extensive research in the area of personality as depicted in the five-factor model, this research focused on the psychological and personality types theories of Jung (1971) and Myers and Briggs (Myers, 1987). Although the personality types theory of Myers and Briggs (Myers, 1987) has not been extensively tested in personnel selection contexts, the personality types approach is proposed for the primary reason of its relevance to diverse areas of industrial and organisational psychology that include career development, group functioning, team development, leader performance, and education (Chen, Tian, Miao & Chia, 2009; Gilal, Jaafar, Omar, Basri, & Waqas, 2016; Quenk, 1999; Vincent, Ward, & Denson, 2013). If personality types are relevant for the areas described above, it is worth investigating their relationship with performance as well as their interaction with other variables that influence job performance, such as cognitive intelligence and emotional intelligence.

Kosti, Feldt, and Angelis (2014) assert that the MBTI theory may have a significant part to play in personnel selection and placement. Acuña, Gómez, and Juristo (2009) found a significant positive correlation between the MBTI personality types and team job satisfaction. Capretz (2002) demonstrates that personality types can be mapped to technical roles for better job performance. Acuña and Juristo (2004) also show that people may be assigned to positions based on their personality types. In addition, Capretz and Ahmed (2010) propose that assigning people onto jobs according to their personality preferences enhances the chances of project success. It is therefore this researcher's principal motivation that if personality types can predict job performance criteria, it is imperative to identify the personality types closely related to such criteria at the personnel section stage. Thus the MBTI should be utilised at the personnel selection stage for the purposes of assigning people to appropriate roles for better job performance capability and to save time and resources. In addition, job-person misfit can be avoided if the assignment of people onto roles is more scientific.

Another reason is that research on personality types has not produced results consistent with prior studies as a result of the influence of culture (Chen et al., 2009). It is therefore imperative that the concept of personality types be tested in different settings to determine the stability of its factor structure in order to generalise findings to broader coverage.

Perhaps the inconclusive results on the relationship between cognitive intelligence, emotional intelligence (ability and trait), personality, and job performance have resulted from different conceptualisations of job performance. In some instances, performance has been viewed as behaviour, consisting on the behaviours rather than actual outcomes (Carmeli & Josman, 2006; Cichy et al., 2009; Greenidge, Devonish, & Alleyne, 2014; Tofighi et al., 2015). In others,

job performance has been defined as actual results or the extent to which the employee meets the organisational goals set for them (Abraham, 2004; Gooty et al., 2014; Hui-Hua & Schutte, 2015; Shamsuddin & Rahman, 2014). Still other studies have used job or task simulations as a proxy for job performance (Christiansen et al., 2010; Dan et al., 2016; Lam & Kirby, 2002). The present research sought to include in one study the two criteria of job performance, that is, task performance and organisational citizenship behaviour, which have long been seen as antecedents of job performance (Borman & Motowidlo, 1993; Motowidlo, 1993). This is because a multi-criteria approach to personnel selection requires a multi-criteria performance construct to get a clear of the relationship between the two (Motowidlo, 1993). This study therefore sought to contribute to the field of personnel selection by investigating the influence of cognitive intelligence, emotional intelligence (ability and trait), and personality on job performance using a robust and direct measure of job performance. In addition, the study defined the criterion in terms of both task performance and organisational citizenship behaviours, also referred to as contextual performance (Borman & Motowidlo, 1993; Carmeli & Josman, 2006; Williams & Anderson, 1991).

In summary, studies on the relationship between cognitive intelligence, emotional intelligence (ability and trait), personality, and job performance have either included only one or two independent variables as predictors of job performance. In addition, such studies have been done in different settings and under different circumstances. Most studies on the relationship between emotional intelligence and job performance have tapped only one model of emotional intelligence, presenting difficulty in the generalisation of results. As previously stated, some researchers who have attempted to include both the trait and mixed model emotional intelligence did not direct job performance measures like task performance, ODBI, and OCBO. Furthermore, some studies like Cote and Miners' (2006) fail to comment on sociodemographic variables like age, gender, and job tenure, yet in their meta-analysis Joseph and Newman (2010) and O'Boyle et al. (2011) argue that these variables may moderate the predictive power of the predictor variables on job performance. This calls for the need to carry out research on the influence of cognitive intelligence, emotional intelligence (ability and trait), and personality on job performance in a single study (together with the influence of age, gender, job tenure, and job type on job performance), in order to provide more informed guidance for industrial psychologists.

Notwithstanding the foregoing, the closest attempt to explaining the relationship between cognitive intelligence, emotional intelligence (ability and trait), personality and job performance is offered by meta-analytic studies conducted by Joseph and Newman (2010) and O'Boyle et al. (2011). While O'Boyle et al.'s (2011) study is founded on meta-analysis and therefore lacks

empirical rigour, the model of Joseph and Newman (2010) appears to focus on narrow facets of emotional intelligence and personality, leaving some empirical questions unanswered. The relationship between the said variables and job performance is also complicated by the definition of job performance itself (whether performance should be conceptualised as behaviour or as results) (Williams & Anderson, 1991). Another drawback of the model by Joseph and Newman (2010) and O'Boyle et al. (2011) is that studies used for meta-analysis were done in different settings, with different methodologies, different samples, and using different statistical procedures. Consequently, the model lacks empirical rigour, calling for the need for empirical research to investigate such relationships within one study, with a view to proposing a model for personnel selection.

1.2 PROBLEM STATEMENT

This section outlines the problem statement for the study.

Personnel selection in Zimbabwe has been bedevilled by a variety of challenges (Dumbu & Chadamoyo, 2012; Nyamubarwa et al., 2013; Zinyemba, 2014). Zinyemba (2014) points out that personnel selection in Zimbabwean organisations is characterised by challenges like nepotism, favouritism, lack of job experience, lack of skills, and political interference. These personnel selection malpractices may lead to the selection of unsuitable candidates for job positions because they are unrelated to the job performance criterion (Zinyemba, 2014). This is the reason why Dumbu and Chadamoyo (2012) argue that Zimbabwean organisations end up failing to employ suitable candidates for positions. Commenting on personnel selection in Zimbabwe, Nyamubarwa et al. (2013) warn that these personnel selection malpractices lead to wrong choices and eventually result in organisations investing more in training and development, which negatively affects organisational efficiencies. It is therefore important for organisations to use more scientific measures for personnel selection that can best predict job performance.

The relationship between cognitive intelligence, emotional intelligence, personality, and job performance has been marked by considerable debate, each study coming with its generalisable conclusions on the relationship. Some researchers have assessed the relationship between one or limited predictor variables and job performance on the other (Abraham, 2004; Carmeli & Josman, 2006; Clarke, 2010; Dan et al., 2016). Others have attempted to look at two or more variables (Cote & Miners, 2006). The drawback of conclusions from such studies is that the studies were conducted in different environments and under specific contexts while trying to generalise the relationships to a broader context.

The main problem is that once research is published, it is taken as real, leading practitioners to adopt the relevant conclusions from the same. This is acceptable if the recommendations are based on sound methodology. Findings based on flawed methodologies may, however, lead practitioners astray and may fail organisations as selection tools may be inappropriately applied. This calls for standardisation of empirical investigation of all the predictor and moderator variables to ascertain the true nature of the predictive validities.

Studies have also employed different tools, especially with regard to emotional intelligence (mixed, trait, and ability) but at the same time trying to make general conclusions (Christiansen et al., 2010; Clarke, 2010; Cote & Miners, 2006). What appears to be lacking in the literature is simultaneous research on both trait emotional intelligence and ability emotional intelligence in one study, as well as their relationship with cognitive intelligence, personality, and job performance. Failure to empirically investigate the said variables in one study may confuse both industrial psychologists and human resources practitioners alike with regard to the choice of assessment interventions to employ for maximum utility in personnel selection contexts.

It appears that the trait factor model of personality has hitherto received extensive research (Furnham et al., 2009). While the predictive validity of the Big Five appears to be situational (Furnham et al., 2009), the general conclusions have been that conscientiousness and emotional stability predict job performance better than the other three factors (Joseph & Newman, 2010). Although the theory of personality types as measured by the Myers-Briggs Type Indicator (MBTI) (Myers, 1962) has not been tested in personnel selection contexts per se, the MBTI could be a valuable follow-up tool after the personnel selection process to support new employees in their adjustment to the workplace and their career development (Leary et al., 2009). Thus, time can be saved as the identification of needs would have been performed at the personnel selection stage. It is against this background that the inclusion of the MBTI (Myers, 1962) in this study will assist in personnel selection and subsequently assist in the adjustment of people in the workplace.

The other problem hitherto posed by research is the conceptualisation of job performance. Some studies have used task performance, focusing on hard goals in their conceptualisation of job performance (Abraham, 2004; AlDosirya et al., 2016; McNulty et al., 2016). Others have used contextual performance measures, focusing on behaviour that leads to the performance (Carmeli & Josman, 2006; Cichy et al., 2009; Greenidge et al., 2014). Still, others have used simulations and other tests as proxies for job performance (Christiansen et al., 2010; Lam & Kirby, 2002). This research provides the opportunity to investigate the relationship between the proposed variables within one study, using an all-encompassing definition of performance

criteria (task performance, OCBI, and OCBO) that have a direct connection with jobs performed by individuals in organisational settings. This is expected to reduce confounding information and assist in generalising the findings with more confidence.

Joseph and Newman (2010) used meta-analysis to investigate the influence of cognitive intelligence, emotional intelligence (ability and trait) and personality on job performance. Meta-analytical studies like Joseph and Newman's (2010) may be credited for providing direction for theory, practice and further research. However, a meta-analysis on its own has disadvantages. For example, it has been long established that meta-analysis uses structured mechanical procedures of data analysis which makes meta-analyses less empirical (Aurthur Jr, Bennette Jr, & Huffcutt, 2001). Aurthur Jr et al. (2001) point out that such analysis procedures like coding of data elements and correction for effect sizes may not be sensitive to factors like the social contexts of the studies, quality of applied methodologies, including subtler ways of research design, and data analysis procedures. While Joseph and Newman (2010) provide guidance on the relationship between cognitive intelligence, emotional intelligence (ability and trait), personality and job performance, theirs is still a collection of individual studies that display the pitfalls mentioned in this problem statement. As such, there is an urgent need to empirically clarify the relationship between cognitive intelligence, emotional intelligence (ability and trait), personality and job performance in one study and how these constructs can be applied in the personnel selection context.

It follows from the foregoing that most research on the relationship between cognitive intelligence, emotional intelligence (ability and trait), personality and job performance has been carried in the developed world. The present study sought to contribute to personnel selection theory by refining previous research through empirical investigation of the influence of their foregoing predictor variables on job performance and the potential moderation of sociodemographic variables in a developing country. From a practical point of view, and as part of efforts to generalise findings in the developing world, the research will be beneficial to the Zimbabwean environment (and perhaps for African countries) by providing practitioners with a fit-for-purpose personnel selection model.

In summary, the problem statement provided the reader with the general nature of the problem for research on the influence of cognitive intelligence, emotional intelligence (ability and trait), and personality on job performance. The problem statement also provided the background for the research questions. The following section outlines the research questions for the study regarding the literature review and the empirical study.

1.3 RESEARCH QUESTIONS

This section outlines the research questions for the study.

1.3.1 General research questions

The general research questions for the study are: (1) What is the relationship between cognitive intelligence, ability emotional intelligence, trait emotional intelligence, personality, and job performance and how can that relationship be used to construct a personnel selection model? (2) What are the possible moderating effects of age, gender, job tenure, and job type in this relationship? (3) What are the practical implications of such relationships for personnel selection practice? The ultimate research question for the study is whether or not a model for personnel selection in general and for the Zimbabwean context in particular, encompassing the influence of cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality on job performance, as well as the part played by the said sociodemographic variables in that relationship, can be constructed in a valid and reliable manner.

The following section outlines the research questions with regard to the literature review and the empirical study.

1.3.2 Research questions about the literature review

The following are the research questions about the literature review:

Research question 1: How does the literature conceptualise personnel selection and job performance in contemporary and African and Zimbabwean organisational contexts?

Research question 2: How does the literature conceptualise the constructs of and relationship dynamics between cognitive intelligence, ability emotional intelligence, trait emotional intelligence, personality, and job performance, and how can this relationship be explained in a theoretical personnel selection model?

Sub-question 2.1: What is the theoretical relationship between cognitive intelligence and job performance?

Sub-question 2.2: What is the theoretical relationship between ability emotional intelligence and job performance?

Sub-question 2.3: What is the theoretical relationship between trait emotional intelligence and job performance?

Sub-question 2.4: What is the theoretical relationship between personality and job performance?

Sub-question 2.5: How do sociodemographic variables of age, gender, job tenure, and job type influence individuals' level cognitive intelligence, ability emotional intelligence, trait emotional intelligence, personality, and level of job performance?

Research question 3: What are the elements of the theoretical model proposed for personnel selection based on the links between cognitive intelligence, ability emotional intelligence, trait emotional intelligence, personality, and job performance and what are the implications for personnel selection practices?

1.3.3 Research questions about the empirical study

The following are the research questions concerning the empirical study.

Research questions 1: What is the nature of the statistical relationship between cognitive intelligence, ability emotional intelligence, trait emotional intelligence, personality, and job performance, as manifested in a sample of respondents in the Zimbabwean organisational environment?

Research questions 2: Do the predictor variables of cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality significantly predict job performance?

Research questions 3: Based on the statistical relationship between cognitive intelligence, ability emotional intelligence, trait emotional intelligence, personality, and job performance, what are the elements of the empirically manifested personnel selection model, and how does the proposed empirical model compare with the theoretically hypothesised model?

Research questions 4: Are there interaction (moderating) effects between the demographic variables (age, gender, job tenure, and job type) and cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality in predicting job performance?

Research questions 5: Do individuals from different ages, genders, job tenures, and job types differ with regard to their cognitive intelligence, ability emotional intelligence, and trait emotional intelligence, and levels of job performance?

Research questions 6: What recommendations can be made for personnel psychology practices regarding the use of cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality in personnel selection, and what are the areas for possible future research based on the findings of this research?

1.4 RESEARCH AIMS

This section outlines the research aims for the study.

1.4.1 General aim of the research

The general aim of the study is to: (1) investigate the relationship between cognitive intelligence, emotional intelligence (ability and trait), personality, and job performance for the purpose of constructing a personnel selection model; (2) investigate the possible moderating (interaction) effects of age, gender, job tenure, and job type in this relationship, and (3) to investigate the practical implications of such relationships for personnel selection practices. The ultimate aim of this research is to propose a model of personnel selection in general and for the Zimbabwean context in particular, encompassing the influence of cognitive intelligence, emotional intelligence (ability and trait), and personality on job performance, as well as the potential moderation/interaction effects of age, gender, job tenure, and job type in that relationship.

1.4.2 Specific aims of the research

Specific aims concerning the literature review and the empirical study are stated below.

1.4.2.1 Literature review.

The following are the research questions for the literature review:

Research aim 1: To investigate how the research literature conceptualises personnel selection and job performance in general and in contemporary African and Zimbabwean organisational contexts.

Research aim 2: To investigate the way literature conceptualises the constructs of and relationship dynamics between cognitive intelligence, ability emotional intelligence, trait emotional intelligence personality, and job performance and how this relationship can be explained in a theoretical personnel selection model.

Sub-aim 2.1: To conceptualise the theoretical relationship between cognitive intelligence and job performance

Sub-aim 2.2: To conceptualise the theoretical relationship between ability emotional intelligence and job performance

Sub-aim 2.3: To conceptualise the theoretical relationship between trait emotional intelligence and job performance

Sub-aim 2.4: To conceptualise the theoretical relationship between personality and job performance

Sub-aim 2.5: To determine whether the sociodemographic variables influence an individual's level of cognitive intelligence, emotional intelligence (ability and trait), and personality and level of job performance

Research aim 3: To investigate the elements of the theoretical model proposed for personnel selection based on the links between cognitive intelligence, ability emotional intelligence, trait emotional intelligence, personality, and job performance and to determine the implications for personnel selection practices.

1.4.2.2 Empirical study.

In terms of the empirical study, the specific aims are:

Research aim 1: To empirically investigate the statistical relationship between cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality, and job performance, as manifested in a sample of respondents in the Zimbabwean organisational environment.

Research aim 2: To determine whether the predictor variables of cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality significantly predict job performance.

Research aim 3: Based on the statistical relationship between cognitive intelligence, ability emotional intelligence, trait emotional intelligence, personality, and job performance, to determine the elements of the empirically manifested personnel selection model, and how the proposed empirical model compares with the theoretically hypothesised model.

Research aim 4: To determine whether there are interaction (moderating) effects between the sociodemographic variables (age, gender, job tenure, and job type) and cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality in predicting job performance.

Research aim 5: To empirically investigate whether individuals from different ages, genders, job tenure, and job types differ with regard to their cognitive intelligence, ability emotional intelligence, and trait emotional intelligence, and levels of job performance.

Research aim 6: To make recommendations for personnel psychology practices regarding the use of cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality measures for personnel selection, and suggest areas for possible future research based on the findings of this research.

The next section outlines the statement of significance of the research.

1.5 STATEMENT OF SIGNIFICANCE

This study will contribute to the practice of personnel psychology and personnel selection at the theoretical, practical and empirical levels.

1.5.1 Theoretical significance

This research is significant on a number of theoretical dimensions. Models of personnel selection can only be built if research is able to investigate all variables affecting personnel selection in one study. This may of course be utopia. Nevertheless, years have gone by with research trying to address the influence of cognitive intelligence, emotional intelligence (ability and trait), and personality on job performance, but with mixed conclusions (Abraham, 2004;

AlDosirya et al., 2016; Brody, 2004; Carmeli & Josman, 2006; Cote & Miners, 2006; Dulewicz & Higgs, 2000; Goleman, 1997; Greenidge et al., 2014; Jiang et al., 2009; Lam & Kirby, 2002; McNulty et al., 2016; Murensky, 2000; Wolff et al., 2002; Wong & Law, 2002). Such studies have been focusing only on the part of the relationship leaving a gap in research. The study will contribute to the theory of personnel selection by suggesting other variables that may influence job performance and thereby improve the predictive power of personnel selection models on job performance.

Research has not also deliberately investigated the moderation of sociodemographic variables on the relationship between cognitive intelligence, emotional intelligence (ability and trait), personality, and job performance in one study. Research has been inconsistent perhaps for at least two reasons. Firstly, research has been conducted in different cultures and settings with researchers trying to make general theoretical contributions from different perspectives. Secondly, the inclusion of such sociodemographic variables seems not to have been deliberate. In studies where the aim is not to investigate the influence of sociodemographic variables, it is difficult to conclude from the research with confidence. This study deliberately sought to understand the influence of sociodemographic variables not only as conceptualised by literature, but also as revealed by the empirical study. This is expected to assist in building a more coherent personnel selection model.

Other sources of theoretical significance of this study stem from the problem in criterion definition with regard to performance. Prior research has either focused on only one domain of performance (task versus contextual), or used simulations as a proxy of performance (Abraham, 2004; Carmeli & Josman, 2006; Christiansen et al., 2010; Cichy et al., 2009; Dan et al., 2015; Lam & Kirby, 2002; McNulty et al., 2016). This research departed by not only focusing on the relationship between cognitive intelligence, emotional intelligence, personality, and job performance all at once but by also employing performance measures that are directly related to the work environment regarding both task and contextual performance. It will also be interesting to find out how each of the variables of cognitive intelligence, emotional intelligence (ability and trait), personality, and sociodemographic variables correlated with the different dimensions of job performance (task and contextual) as hypothesised in this study. This is expected to contribute to theory building in the field of personnel selection.

1.5.2 Empirical significance

Any practical research should have a level of empirical rigour to warrant the confidence with which conclusions can be drawn from the same. Attempts have been made to determine the

influence of cognitive intelligence (ability and trait), emotional intelligence, and personality, on job performance, as well as the moderation of some sociodemographic variables through meta-analysis (Joseph & Newman, 2010). Moderator effects, also called interaction effects, occur when another variable changes or modifies the quality and strength of the relationship between an independent and a dependent variable (MacKinnon, 2011). Joseph and Newman (2010) proposed a cascading model of this relationship. However, the model proposed by Joseph and Newman (2010) only included the influence of ability emotional intelligence (Mayer & Salovey, 1997) on job performance. A later attempt by O'Boyle et al.'s (2011) meta-analysis seems to have captured a broader range of variables. However, from their name, meta-analyses suffer from a lack of empirical rigour as they draw information from different studies which would have used different methodologies to make conclusions. In making such conclusions, some correctional methodologies and statistical procedures are employed to make sense out of the data. Hence, the empirical significance of this study stems from the premise that this could be the first study to simultaneously investigate the influence of cognitive intelligence, emotional intelligence (ability and trait), and personality on job performance.

In line with the foregoing, this study is also perhaps one of the first to deliberately investigate the relationship between cognitive intelligence, emotional intelligence (ability and trait), personality, and job performance, as well as the moderating effects of the sociodemographic variables of age, gender, job tenure, and job type in that relationship. The significance stems from the fact that the study will offer a complete picture of the relationship, which includes deliberately and empirically investigating other variables that may potentially moderate the relationship between predictors variables and the criterion instead of relying on meta-analyses.

1.5.3 Practical significance

From a practical point of view, prior research has focused on the relationship between cognitive intelligence, emotional intelligence, personality, and job performance in general (Christiansen et al., 2010; Fallon et al., 2014; Fox & Spector, 2000; Hakkak, Nazarpouri, Mousavi, & Ghodsi, 2015; Lam & Kirby, 2002; Sue-Chan & Latham, 2004). This research seeks to contribute to the field of personnel selection by focusing on the selection of supervisory, professionally qualified and experienced specialists and middle managers, as opposed to focusing on all occupational positions across the board. This would provide more focus with regards to the proposed personnel selection model.

The study also sought to assist Zimbabwean organisations with a model or models for personnel selection at managerial level. This stems from the fact that a large number of competent people have left the country as a result of the economic decay that characterised Zimbabwe between 2000 and 2009 (Hanke & Kwok, 2009). One could conclude that in an economy with unskilled labour, it becomes necessary to use more scientific personnel selection methods and measures in order to reduce the error of selecting unsuitable candidates for jobs. The present study therefore sought to bridge this gap by proposing a scientific personnel selection model that encompasses the influence of cognitive intelligence, emotional intelligence, and personality on job performance to assist organisations to meet their personnel selection objectives.

In summary, this section has provided the theoretical, empirical and practical significance of this study. In line with the statement of significance, Figure 1.1 below shows the research focus for this study, which includes the general business environment, the labour market, and the personnel selection measures used by organisations to assess job seekers from the labour market.

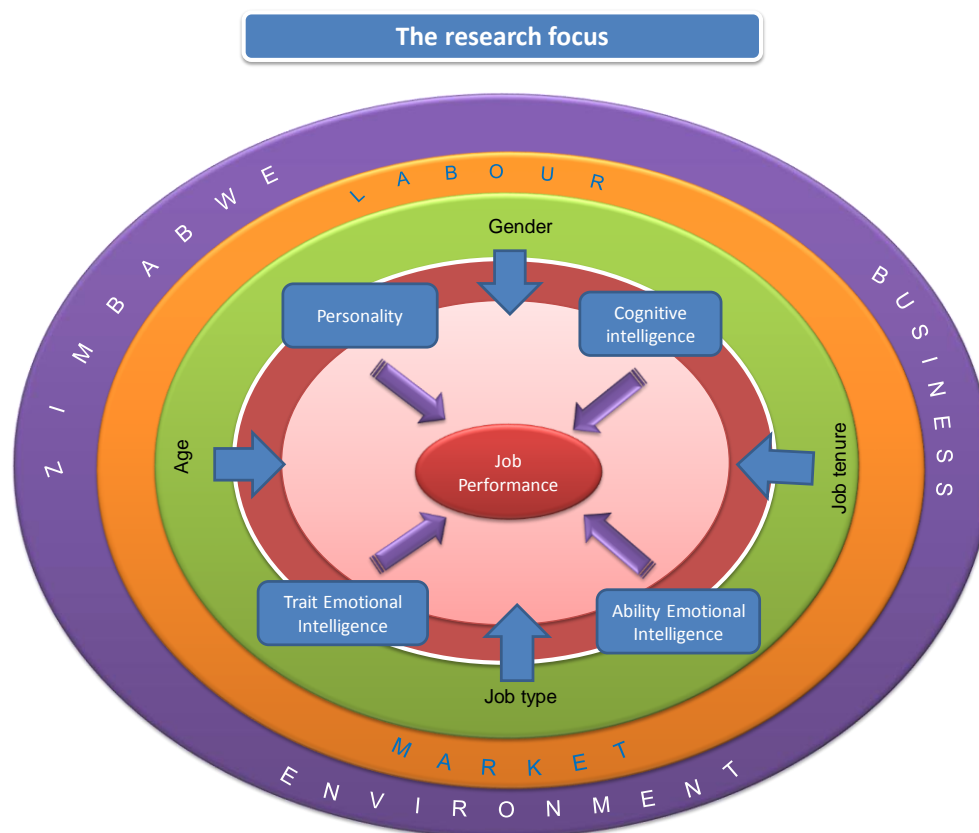


Figure 1.1. The research focus

1.6 THE RESEARCH MODEL

The research model follows the research philosophy and is associated with a particular type and design of the research. The proposed study adapted part of Mouton and Marais' (1996) seminal work on research models. Mouton and Marais' (1996) model is based on the philosophical convictions of sociology (the assumptions made on how society functions), ontology (the assumptions that are made about the nature of social reality), teleology (the need to address the aims of the research), epistemology (the proof required to justify a claim to knowledge), and methodological dimensions (the steps taken to study a phenomenon). Of the five components of the models, the sociological dimension will be excluded since this research is purely quantitative. Before the research model is explained, the paradigm perspective is described below.

1.7 PARADIGM PERSPECTIVE OF THE RESEARCH

The definition of the term “paradigm” can be traced to Kuhn (1970). According to Kuhn (1970), a paradigm is a constellation of concepts, values, perceptions and practices shared by a community of practitioners. Later, Schwandt (2001) defined a paradigm as a shared view representing values and beliefs that guide the way problems are solved in a discipline. The present study relates to the field of Industrial and Organisational Psychology, and the applicable paradigms regarding the literature review are discussed in the next section.

1.7.1 Paradigm perspective for the literature review

The literature about cognitive intelligence and emotional intelligence will be reviewed according to the cognitive-social learning paradigm (Mischel, 1999b). The literature on personality will be reviewed according to both the cognitive-social learning and the analytical paradigms (Jung, 1921, 1971), while literature on job performance will be reviewed in line with the humanistic paradigm (Maslow, 1970). The following subsections discuss the paradigms that are applicable to each of the variables of cognitive intelligence, emotional intelligence, personality, and job performance.

1.7.1.1 The cognitive-social learning paradigm: cognitive and emotional intelligence

The cognitive-social learning paradigm (Bandura, 1977; Mischel, 1999b; Rotter, 1954) provides a meta-theoretical foundation for the concepts of cognitive and emotional intelligence. According to Morgan (1980), a meta-theoretical foundation is a worldview, which

may include different schools of thoughts. Morgan (1980) further states that meta-theoretical foundations are ways of viewing and studying a shared reality. According to Mischel (1999b), the cognitive-social learning paradigm stipulates that two main determinants shape behaviour, namely, personal dispositions and cognitive and affective factors. As far back as 1977, Bandura (1977) had already discovered that people and their social settings are constantly interacting and this interaction plays an essential role in shaping people's personality, cognitive intelligence and emotional intelligence. Accordingly, people select and shape their environment, as well as give meaning and interpretation in ways that suit their beliefs (Cervone & Shoda, 1999). Cervone and Shoda (1999) maintain that in line with the cognitive-social learning paradigm, over time, people build average tendencies in which they respond to their environment across situations. Also, Cervone and Shoda (1999) posit that people may institute distinctive variations to those average tendencies from one context to another. In line with Sternberg and Detterman's (1986) argument, the former fits well in the emotional intelligence space and the latter fits well in the definition of cognitive intelligence as the ability to adapt to the environment. This is further supported by the assertion by Mischel (1999b) that people engage in purposive behaviour and have the ability to control, nurture and influence future events. In line with the core tenets of cognitive and emotional intelligence, people are both cognitive and affective in that they use experience to determine and anticipate present and future events (Mischel, 1999b).

According to the cognitive-social learning paradigm, when people interact with the environment, personal dispositions predispose an individual to respond to a specific situation (Cervone & Shoda, 1999). The ability to control emotional responses to these specific situations fits well in the emotional intelligence space. Cervone and Shoda (1999) also maintain that cognitive and affective processes determine whether the dispositions are meaningful to a particular situation and this relates well to the concept of cognitive intelligence and personality. In the process, the level and complexity of the interaction between people's cognitive and behavioural factors and the environment determine the level of human performance and the same concept can be applied to job performance within organisations. For Mischel (1999b), people's personal qualities and cognitive-affective factors and appraisals will override situational variables. As seen later in this section, such use of cognition (including the use of encoding strategies) is thematically related to cognitive intelligence. In the same vein, stable personal dispositions partly determines how an individual responds to a particular situation and this is related to emotional intelligence.

According to Lord and Kanfer (2002), emotions provide the interface that mediates between the input from the environment and the behavioural output and this interface is strongly linked

to the motivational and implementation system. In turn, this facilitates the satisfaction of an organism's central needs. For people, emotions split the reflex stimulus–response link, allowing for flexibility in adjusting to environmental demands. According to the cognitive social learning paradigm, while emotions prepare and energise appropriate action tendencies, responses are not realised immediately (Lord & Kanfer, 2002). As they (Lord & Kanfer, 2002) argue, this delay assists in providing the latency period for processing additional information and considering alternative responses. This, therefore, determines the level of an individual's emotional intelligence. This determination of emotional response is also facilitated by cognitions and fits into the cognitive intelligence space. Lord and Kanfer (2002) note that for stronger emotions, the latency period becomes shorter. Hence, in critical situations, which produce stronger emotions, programmed responses occur. However, in more critical situations, more thoughtful behavioural choices may occur. This is because the individual will have time to consider various alternatives for responding to the emotions. From the foregoing, it follows that the basis for emotions and related responses may change because of the intensity of emotions. The manner in which individuals respond to emotions then determines their level of emotional intelligence. As latency between emotional triggers and responses increases, the individual may engage in more cognitive and social processes (Lord & Kanfer, 2002). Thus, cognition, as opposed to mere emotional response, will occur, and this phenomenon fits well in the cognitive intelligence space.

It should be noted that, according to the cognitive-social learning paradigm, intense emotions produce consistent and rapid behaviour, while less intense emotions produce variable behaviour (Lord & Kanfer, 2002). This is quite important in the study of emotions and cognition because it assists in understanding how cognitive and social organisational processes affect emotions and behaviour. The concept of cognitive intelligence becomes essential here because cognitive processes become effective in modulating emotional processes (Wegner, 1994). Wegner (1994) however notes that if individuals are under cognitive load, their emotional regulation becomes less effective. Thus, an individual should be able to exercise an appropriate balance between cognition and emotions for them to adapt well to the environment. The preceding statement fits well within the definition of intelligence by Sternberg and Detterman (1986).

Fossum and Barrett (2000) note that the relationship between emotions and the resultant behaviour (which is now called emotional intelligence) depends on whether the emotions are positive or negative. Positive emotions are associated more with not only slower but also variable responses than negative ones. When applied to the study of emotional intelligence, regulating emotions becomes an important part of emotional intelligence studied today (Mayer

& Salovey, 1997). Lord and Harvey (2002) note that while negative emotions may have adverse effects, positive emotions may have psychic costs. Thus, one should have balanced emotions to do well on tests of emotional intelligence. Accordingly, balanced emotions should, therefore, promote various organisational outcomes, including creativity, effective social relationships and commitment (Lord & Kanfer, 2002).

According to Haward (2002), emotions are also part of the information processing system in that people reason and think about emotions. This is premised on the assertion that strong emotions may sometimes short-circuit cognitive processes. Cognition, therefore, assists in the interpretive processes regarding the generation of emotions, a phenomenon often referred to as cognitive appraisal. According to Lord and Harvey (2002), cognitions and emotions are inseparable because they symbiotically interact. For example, emotions may influence cognition, but if one takes time to reappraise the situation, cognitions may also, in turn, alter emotions. Hence, cognition and emotions interplay, fitting well into the social-cognitive learning paradigm (Lord & Harvey, 2002).

Having discussed the meta-theoretical foundations underpinning the concepts of cognitive and emotional intelligence, the following subsection discusses cognitive-affective personality systems which are also part of the cognitive-social learning paradigm as it applies to personality.

1.7.1.2 The cognitive social learning paradigm: personality

The cognitive social learning paradigm posits that the study of personality should be done in the context of consistency, coherence, and variability of behaviour between situations (Mischel, 1999b). Mischel (1999b) argues that personality theories merely define, neglecting to look at the situational variables. At the centre of the cognitive-social learning paradigm are the cognitive-affective personality systems, which Mischel (1999b) uses to define the foundations of the study of human personality. Mischel's (1999) approach reconceptualises the study of personality into the cognitive social approach. He further posits that personality should not discard the trait approach but should reconceptualise the paradigm to encompass the complex and often subtle interaction that characterises individuals (Mischel, 1999b). As a result, Mischel (1999b) points out that the cognitive social approach to personality should be viewed as a product of the cognitive social and motivational variables that are required for a mediating process about the person–situation interaction and the coherence of personality. According to Mischel (1999b), personality should be conceptualised in terms of constructs, defining the way people encode or appraise particular types of situations, relevant

expectations, and the values that become activated, as well as the competencies and self-regulating variables available to deal with the situations.

The cognitive-affective personality systems stipulate that personality is a stable system, which processes situational information (Mischel, 1999b). Thus, people experiencing different situations should show different behaviours that suit those situations. These variations then determine individual differences in the way people deal with their environments. It is interesting to note that Mischel (1999b) supports the psychodynamic conception of personality in this case. To support this view, he argues that people's underlying dynamics and qualities, mind, consciousness, motives and the passions that drive them may be reflected in both how particular types of behaviour are displayed and when and why those behaviours occur. Mischel (1999b) therefore argues for an approach to the study of personality that attempts to predict and explain the person–situation signatures of personality. This entails a re-conceptualisation of the nature of personality coherence, personality disposition, structure and dynamics.

The cognitive-affective personality systems also stipulate that individuals differ in the way their cognitive and affective units are activated. According to Mischel (1999b), these cognitive-affective personality systems include mental resources, emotions and representations. According to the cognitive-affective personality systems, individual differences are exhibited in both the accessibility of particular cognitions and affect, as well as the distinctive organisation of relationships among those cognitions and affects. Thus, when situational features are perceived, cognitions and affect become activated through distinctive network connections. In this regard, the personality structure is represented by stable systems of interconnections among those cognitive and affective units. Once the whole system becomes activated, this also activates strategies, plans and potential behaviours in a situational contextualised characteristic pattern. Of importance to note is that the system does not only respond to the environment, but also generates, selects and modifies the environmental situations in a reciprocal transaction as it anticipates, interprets, reciprocates, rearranges, changes and reacts to the situation (Mischel, 1999b). In this interaction, Mischel (1999b) argues that the personality system varies across situations in relation to stable individual differences in situation–behaviour relations. To this end, different cognitions, affects and behaviours are activated in sympathy with the changing situation and its features. This happens consistently even if the interconnections, cognitions, affects and behaviours remain unchanged across situations.

As the system interacts with the environment, it builds the *if... and then...* pattern (e.g., if the situation is like this, then I respond in this way) as a way of dealing with situational environmental variables (Mischel, 1999b). In this scenario, the personality system merely alters the situation, while the system comprising the cognitions, affects and behaviours does not change. In summary, a person's behaviour or response to the situational variable must vary in a way consistent enough to maintain the integrity and fidelity of the personality. This creates the consistency, variability, organisation and coherence of the human personality.

Having discussed at the meta-theoretical foundations of personality in general, the next section discusses the analytical paradigm as it applies to the conceptualisation of personality according to psychological types.

1.7.1.3 Analytical (psychodynamic) paradigm: personality

The analytical paradigm of Jung (1921, 1959, 1971) is the applicable meta-theoretical foundation for the literature on personality. The analytical paradigm sets itself apart from Freud's psychoanalytic conception of personality in that Jung portrayed the human being positively as opposed to focusing on pathology, stress and sexual instincts (Briggs & Briggs-Myers, 1998). Unlike Freud, Stevens (2001) adds, Jung viewed man positively in that he emphasised human development and actualisation. Accordingly, the analytical paradigm is premised on the assumption that humans are complex beings motivated by the different forces of opposing poles. For example, the paradigm posits that people are motivated by both their unconscious, conscious thoughts as well as their collective unconscious, which consists of latent memories that are inherited from their ancestral past. For Jung (1921), the total personality is called the psyche, and consists of a complex network of systems which constantly interact with each other. The psyche is divided into three subsystems: the ego, the unconscious, and the collective unconscious.

According to Jung (1921, 1959, 1971), personality is driven by three main principles, the principle of opposites, the principle of entropy, and the principle of equivalency. According to these principles, people tend to use their mental functions and attitudes in opposite ways (e.g. introversion versus extroversion, sensing versus intuition). According to the principle of equivalence, an increase in one area of the psyche will lead to a decrease in other areas of the same psyche. The principle of opposites stipulates that if one area of the psyche weakens, the psychic energy is transferred to another part of the psyche, which must be of the same psychological value. The principle of entropy maintains the balance of psychic energy. For example, if energy is more concentrated in the unconscious at a particular moment, some of

the energy will be transferred to the unconscious to maintain equilibrium. Thus, the application of different principles and preferences uniquely defines one's personality type.

1.7.1.4 Humanistic paradigm: job performance

The humanistic paradigm provides a meta-theoretical foundation for the concept of job performance. At the heart of this paradigm is the notion that human behaviour is goal-directed and that humans always strive to achieve in everything they do (Maslow, 1970). According to Feist and Feist (2009), the humanistic paradigm is based on the assumption that human beings are positive and are motivated by the need to grow and realise their fullest potential. Thematically, the humanistic paradigm relates to job performance in that human beings are motivated to perform and grow in different aspects of their lives (including performing to achieve career growth) to achieve self-actualisation. According to the humanistic paradigm, humans fail to reach their potential because of environmental and situational deterrence. The humanistic paradigm assumes that a person is motivated by the needs and people have the capacity and potential to grow towards achievement of psychological health, which is referred to as self-actualisation (Maslow, 1970). Maslow (1970) further points out that in achieving self-actualisation, individuals must satisfy lower-level needs, such as physiological, safety, love, hunger, self-esteem needs, and intrinsic values, through the process of motivation. It is only after satisfying these needs that one can achieve self-actualisation.

One of the tenets of humanism and existentialism is the concept of motivation which is also instrumental in job performance. According to Maslow (1970), people are motivated to perform to achieve their goals by various, often complex factors. For example, a person motivated by performing a job at high levels may be masking his need for dominance and power. In addition, Maslow (1970) postulated that humans are continuously being motivated by different needs of one form or another and when one need is satisfied, it is replaced by another higher-order need. When applied to job performance, for example, a person who outperforms in the job is likely not to get much motivation from that job but may look for other different jobs or assignments that bring more satisfaction. Of importance to note about the humanistic paradigm, as Feist and Feist (2009) point out, is an assumption that people are motivated by more or less the same basic needs across cultures. One would also argue that in the same manner, the motivation for job performance may also be driven by more or less similar needs across cultures.

It is interesting to note that apart from the six human needs, Maslow (1970) also highlighted the importance of cognitive, aesthetic and neurotic needs. While cognitive and aesthetic

needs produce positive results for the individual, neurotic needs may lead to stagnation (Maslow, 1970). Maslow (1970) adds that since neurotic needs run counter to the desire for self-realisation, they are normally non-productive. One may, therefore, posit that in the same ways in which job performance may be viewed from a productive behaviour and counter-productive behaviour approach (Borman & Motowidlo, 1993; Motowidlo, 2003), people may also engage in behaviours counter to the satisfaction of their needs from a humanistic perspective.

According to the existentialist approach, which forms part of the humanistic paradigm, human beings are not passive but have the freedom to engage in behaviour that positively determines their purpose (May, 1981). As a result, people should be depicted as dignified beings and should be studied within their integrated whole. This is because the humanistic paradigm subscribes to the holistic approach to human existence by placing particular emphasis on freedom, values, human potential, meaning of life, personal responsibility and self-actualisation (Feist & Feist, 2009). For Maslow (1970), people are not the victims of events but are purposive and have the freedom to choose what they deem will determine their destiny in a positive way. Feist and Feist (2009) point out that healthy people challenge their destiny, live genuinely, and cherish their freedom.

In summary, when applied to job performance, human beings have a desire to reach maximum performance as a way of advancing their careers. In the process, they exploit their cognitive intelligence, emotional intelligence and preferred behavioural dispositions in a manner that leads to improved organisational performance and positive career outcomes. In so doing, they enhance their self-esteem and self-regard and obtain meaning for their existence and this thematically fits into the humanistic paradigm.

The paradigm perspective discussed so far pertains to the literature review. The next section discusses the paradigm perspective with regard to the empirical study.

1.7.2 Paradigm perspective for the empirical study

The empirical study was conducted in line with the positivist research paradigm. The positivist research paradigm posits that true and authentic knowledge is that which is subject to positive verification (Lakomski & Evers, 2011). Lakomski and Evers (2011) summarise the tenets of positivism as follows:

- Positivism relies on the scientific method of inquiry. Accordingly, the scientific method, which represents the logic of inquiry, is the same and consistent across all sciences, whether they be social sciences or natural sciences. Thus, the way researchers investigate phenomena is almost consistent across all disciplines and enshrined in general methodological guidelines. When applied to this study, the present methodological principle for investigating the variables in question thematically makes the present study positivist in nature (Lakomski & Evers, 2011).
- According to Lakomski and Evers (2011), the goal of positivism and the aim of scientific inquiry are both to explain and predict phenomena. At the heart of the positivist research paradigm is the quest to develop laws of general understanding by discovering both the necessary and sufficient conditions for any phenomenon. This assists in creating a model or models to explain those general laws. If this is known, researchers and practitioners can then manipulate the conditions to assist in arriving at predicted results. In line with the present study, the aim was not only to explain the influence of cognitive intelligence, emotional intelligence and personality on job performance, but also to investigate the level at which the variables can predict job performance. In the same vein, the present study also sought to construct a model for personnel selection that will assist in predicting job performance, which is in line with positivism (Lakomski & Evers, 2011).
- Positivists contend that the scientific model of inquiry is testable. Accordingly, one can only prove research by employing empirical means and not by argumentation, conjecture, or anecdotal evidence (Lakomski & Evers, 2011). Here, logic should be used to develop testable statements. Thus, theoretical statements lead to hypotheses and hypotheses are tested leading to discovery. Positivism does not lend itself to sheer belief or prophecy. Rather any type of research should be observable with the human senses so that research can be proven by the logic of confirmation. The quantification of facts presented in the background and problem statement sections of this study, as well as the need to test the probable causes of and solutions to such problems through a systematic methodology, makes the present study positivist in nature. The use of quantitative research methods, which positivism subscribes to, also lends this study to positivism (Lakomski & Evers, 2011).
- Another major tenet of positivism is that the researcher is unbiased and is distanced from the research that he/she performs (Lakomski & Evers, 2011). Accordingly, the researcher should remain unbiased, investigating the variables and their interaction

with as much distance as possible, thus not allowing common sense to bias the research. In this way, research leads to the generation of theories, which in turn leads to practice. Thus, science should be as neutral as possible and free of any form of bias so that the knowledge that is produced is free from contamination by other factors such as values, beliefs and morals (Lakomski & Evers, 2011).

The next section discusses the meta-theoretical statements, theoretical models and conceptual descriptions applicable to the study.

1.8 META-THEORETICAL STATEMENTS, THEORETICAL MODELS AND CONCEPTUAL DESCRIPTIONS

The following subsection provides the meta-theoretical statements, conceptual descriptions and theoretical models applicable to this study.

1.8.1 Meta-theoretical statements

Meta-theoretical statements refer to views or perspectives shared by practitioners in explaining certain theories or phenomena (Kockelmans, 1993; Morgan, 1980; Tanter & Ullman, 1972). Kockelmans (1993) points out that such views or perspectives are a priori determination derived from some theories. Turner (2012) adds that meta-theoretical statements are not theories in themselves but provide the underlying issues that must be addressed by theories. The relevant discipline for this research is industrial and organisational psychology. The applicable meta-theoretical statements are presented next.

1.8.1.1 Industrial and organisational psychology

Industrial and organisational psychology is a discipline aimed at optimising the psychological well-being of individuals, groups and organisations (Cilliers & Flotman, 2016). Cummings and Worley (2015) also define industrial and organisational psychology as the scientific study of human behaviour in the workplace, including the application of psychological theories and principles to organisations in order to optimise performance at the individual, group and organisational levels. The field of industrial and organisational psychology also involves interventions aimed at improving productivity through people interventions (Cilliers & Flotman, 2016). Another branch of this field is the design and implementation of workplace procedures to improve employee efficiency, as well as structuring the organisation to ensure optimum

productivity (Jex & Britt, 2008). Personnel selection and development, employee safety, group interventions and other performance improvement interventions are also among the functions of industrial and organisational psychologists (Jex & Britt, 2008).

1.8.1.2 Personnel psychology

Personnel psychology is a branch of industrial and organisational psychology that focuses on interventions at the individual level of analysis, which include personnel selection, motivation, wellness and job satisfaction (Reber, Reber, & Allen, 2009). According to Riggio (2016), personnel psychology consists of interventions aimed at creating, caring for and maintaining human resources. Thus, personnel functions like recruitment, selection, placement and development fall under personnel psychology (Riggio, 2016). As discussed in the background to the study, the present study sought to propose a personnel selection model, which is a personnel psychology function.

1.8.1.3 Psychometrics

Anastasi and Urbina (1997) and Gregory (2004) provide a classical definition of psychometrics as the study of the theory and practice of psychological measurement and testing. More recently, psychometrics has been defined as the science of investigating and evaluating the characteristics of instruments designed to measure psychological attributes (Price, 2017). According to Price (2017), psychometrics involves the construction, development and validation of psychological measurement instruments. Therefore, the study of psychometrics ensures that psychological measurement instruments are both reliable and valid (Price, 2017). The psychometric properties of instruments that were employed in this study will be given in the section describing the measurement instruments.

1.8.2 Theoretical models

This section discusses the theoretical models (cognitive intelligence, emotional intelligence, personality, and job performance).

1.8.2.1 Cognitive intelligence

Literature on cognitive intelligence was reviewed from a cognitive psychology perspective. Spearman's (1920) general mental ability (*g*) was consequently identified as an applicable theoretical model since it has been found to predict job performance across most occupations

(Daly et al., 2015; Gonzalez-Mulé et al., 2014; Gottfredson, 1998; O'Connell et al., 2007). Cognitive intelligence was measured using the General Ability Measure for Adults (GAMA) (Naglieri & Bardos, 1997).

1.8.2.2 Emotional intelligence

The literature on emotional intelligence was reviewed in line with the three emotional intelligence models, namely, the ability-based emotional intelligence model (Mayer et al., 2002; Wong, Law, & Wong, 2004), the trait-based emotional intelligence model (Schutte et al., 1998), and the mixed model of emotional intelligence (Bar-On, 2002). The present study used the Assessing Emotions Scale (AES) of Schutte et al. (1998) to measure trait emotional intelligence. Ability emotional intelligence was measured using Wong's Emotional Intelligence Test (WEIS) (Wong et al., 2004).

1.8.2.3 Personality

Literature on personality was presented according to the psychological types theory (Jung, 1921, 1971) and the personality type theory (Myers, 1987). Other conceptualisations of personality will be touched on, albeit at a peripheral level. The measure of personality used for the study is the Myers-Briggs Type Indicator (MBTI), Form M (Myers, McCaulley, Quenk, & Hammer, 1998).

1.8.2.4 Job performance

Literature on job performance focuses on performance as behaviour (organisational citizenship behaviours) as well as performance as results (task performance) (Williams & Anderson, 1991). The Williams and Anderson's Job Performance Scale (Williams & Anderson, 1991) was used as a performance measure.

1.8.3 Conceptual descriptions

The following conceptual descriptions are applicable to this research. These conceptual descriptions arise from classical theories of psychological constructs, and therefore some of their references are quite old.

1.8.3.1 Personnel selection

Moscoso et al. (2017) define the term ‘personnel selection’ as a process used by organisations to determine which job applicant is suitable for a specific position. They (Moscoso et al., 2017) argue that for a decision-making process used to determine the suitability of job candidates to be conceptualised as personnel selection, that process should have certain characteristics. First, personnel selection should involve the use of scientifically developed assessment instruments. Second, the objective of the assessment should be to assist in the selection decision-making. Third and last, the selection process requires a professional (industrial and organisational psychologist) who is qualified to use the aforementioned instruments. Moscoso et al. (2017) go on to point out that for the personnel selection process to be done in an appropriate manner, it is important to know characteristics of the position, for example the tasks and functions, and to determine the extent to which the job applicants possess the knowledge, experience, cognitive abilities, aptitudes, personality qualities, and other characteristics (e.g., emotional intelligence) that are necessary for the applicant to do the job (i.e. to meet the job performance criteria). Thus, the foregoing statement resonates thematically with the present study.

1.8.3.2 Cognitive intelligence

The study of intelligence can be traced to Charles Spearman (1863–1945) who initiated the study of the concept of general intelligence, or the *g* factor (Spearman, 1904). Spearman (1904) proposes a trait that he termed general intelligence or cognitive ability that determines when an individual performs well or badly on an array of activities requiring the use of intelligence. Thurstone (1938) viewed cognitive intelligence as consisting of seven different primary abilities, while Gardner (1998) viewed it as consisting of eight intelligences. Sternberg’s (1985) Triarchic Theory of Intelligence differentiates between analytical, creative and practical intelligence. This debate continued until Anastasi and Urbina (1997) defined cognitive intelligence as the ability to adapt to different situations.

1.8.3.3 Emotional intelligence

According to Ackley (2016), there are three leading schools of thought on emotional intelligence. These are the ability-based (Mayer et al., 2002; Wong et al., 2004), the trait-based (Schutte et al., 1998; Wolff, 2005) and the mixed model of emotional intelligence (Bar-On, 2000). Schutte et al. (2009) posit that assessing emotional intelligence as a trait draws on self and others’ reports to gather information about the display of emotional intelligence

characteristics in daily lives. Proponents of the ability model of emotional intelligence view it as an ability (Mayer & Salovey, 1997). Accordingly, the proponents of the ability emotional intelligence model define emotional intelligence as the emotion perception, appraisal and expression ability to facilitate thought and emotional growth (Mayer & Salovey, 1997). According to the mixed model, emotional intelligence consists of an array of social knowledge and abilities (Bar-On, 2000). These include the ability to perceive, understand and express oneself, including awareness of, understanding and relating to others, as well as the ability to regulate impulses and strong emotions to solve personal or social problems (Bar-On, 2000).

1.8.3.4 Personality

Personality has been defined in terms of the analytical (psychodynamic) perspective (Jung, 1921). The analytical paradigm focuses on the structure, dynamics and development of personality. According to the analytical theory of personality, people react in different ways to the world around them (Feist & Feist, 2009). Feist and Feist (2009) argue that as people react differently to the external world, individuals have different ways of expending psychological energy and have preferences for certain attitudes and mental functions. Accordingly, Feist and Feist (2009) point out that these preferences create unique and different personality types. Hence, the human personality is formed by a combination of personality types.

1.8.3.5 Job performance

According to O'Connell et al. (2007), it is important to address the multidimensional nature of job performance when investigating predictors of job performance. In line with Borman and Motowidlo (1993), O'Connell et al. (2007) further suggest that job performance consists of two major areas, namely, task and contextual performance. According to O'Connell et al. (2007), task performance may be conceptualised as the in-role or expected work behaviours required to perform the job successfully. Contextual performance may be defined as extra-role behaviours (organisational citizenship behaviours) which include things that are not directly required by the job but can benefit the organisation (O'Connell et al., 2007). Earlier, Carmeli and Josman (2006) described performance as behaviour that is engaged by the employee. They argue that performance cannot be defined as outcomes since many variables intervene in performance outcomes. It is, however, logical to conceptualise performance in terms of the "what" (results) and the "how" (behaviour), as depicted by O'Connell et al. (2007). This study will, therefore, define performance both as a task and as contextual in line with O'Connell et al. (2007).

1.8.3.6 Age

Anastasi and Urbina (1997) distinguish between mental age and chronological age. Accordingly, mental age refers to the level of cognitive reasoning in relation to one's age. For example, a 10-year-old boy who has cognitive intelligence enabling him to reason like a 14-year-old boy can be said to have a mental age of 14. Chronological age refers to one's age as calculated from the date of birth. This study employed age as a correlate of cognitive intelligence, emotional intelligence, personality and job performance; accordingly, chronological age was depicted as 'age' in this study.

1.8.3.7 Gender

Gender in this study was defined in terms of being male or female (Haig, 2004).

1.8.3.8 Job tenure

Job tenure refers to the number of years that one has been employed by or working in a company (Tesluk & Jacobs, 1998). Job tenure can also be calculated as the number of years worked within or outside the current company (Kolz, McFarland, & Silverman, 1998). For this study, job tenure referred to the total number of years for which the research participant had been employed, whether or not employment service was broken.

1.8.3.9 Job type

Job type was defined in terms of two major categorisations of occupations, that is, high emotional labour jobs and low emotional labour jobs (Lee, Ok, & Hwang, 2016; Pavitra & Anju, 2016). It is essential at this point to discuss the concept of emotional labour. Hochschild (1983) defines emotional labour as a process engaged by employees in order to manage their emotions to suit or comply with certain organisational display rules. Miller (2015) also add that emotional labour occurs when an employee displays specific emotions as part of their job. According to Lee, Ok, and Hwang (2016) emotional labour occurs in people occupying jobs that require behaviours like smiling at customers, listening and dealing with hostile complains in a polite manner, and sympathising with customers in experiencing difficult situations. Earlier, Wharton (2009) defined emotional labour jobs as jobs involving showing love and care, and involving face-to-face interaction with the public. Thus jobs involving dealing with people and delivering service to people can be classified as high emotional jobs (Pavitra & Anju, 2016). Definitions of emotional labour by Pavitra and Anju (2016) and Wharton (2009) indicate that

high emotional labour occupations may include customer management, sales, human resources management, security investigation and the like. Conversely, one may therefore argue that technical occupations such as engineering, information technology, natural sciences, accounting, and the like may be classified as low emotional labour jobs.

1.9 CENTRAL HYPOTHESIS

The central hypothesis of the study is formulated as follows:

Cognitive intelligence, emotional intelligence (ability and trait) and personality significantly influence job performance and can be applied in the personnel selection context. Thus, different levels of cognitive intelligence, emotional intelligence, and personality will indicate different levels of job performance. The central hypothesis assumed that there is a significant interaction effect between the predictor variables ([1] cognitive intelligence, [2] emotional intelligence [ability and trait], and [4] personality respectively) and the sociodemographic variables of age, gender, job tenure and job type in predicting job performance. The central hypothesis also assumed that, individuals from different age, gender, job tenure, and job type groups differ significantly regarding their cognitive intelligence, emotional intelligence (ability and trait), and personality.

The central hypothesis assumes that the predictive power of the variables is arranged from the best to the least predictive as follows:

Cognitive intelligence, ability emotional intelligence, trait emotional intelligence, personality

Knowing the relationship between the variables stated above essential for practitioners to understand the levels at which different personnel selection methods and measures explain the variance in job performance because it assists in constructing a personnel selection model. It is also important to be aware of these relationships so that the personnel selection model can be proposed based not only on the potential influence of predictor variables, but also on the potential part played by moderator variables in such a model.

1.10 THEORETICAL ASSUMPTIONS

The present research sought to address the following theoretical assumptions:

- a) Research needs to empirically clarify the influence of cognitive intelligence, emotional intelligence (ability and trait) and personality on job performance.
- b) The variables of age, gender, job tenure, and job type may influence individuals' cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality.
- c) Research needs to provide elements of a personnel selection model on the relationship between cognitive intelligence, emotional intelligence (ability and trait), personality and job performance, and the influence/moderation of age, gender, job tenure, and job type in such a model.

1.11 METHODOLOGICAL ASSUMPTIONS

This section discusses different methodological assumptions as they are enshrined in the philosophical convictions that relate to research. The philosophical positions in research formed the base for the research methods to be adopted by this study. In this section, the epistemological, ontological, teleological and methodological dimensions are discussed and their application to the study is explained.

1.11.1 Epistemology

Epistemology refers to theoretical knowledge, which informs researchers on how they can understand the world (Love, 2008). Thus, epistemology refers to the proof one requires for justifying a claim to knowledge about phenomena or the social world. This research is epistemological because it sought to test the central hypothesis in order to find the truth. In line with Love (2008), testing of the research claims and literature assumptions also rendered the research epistemological in nature.

1.11.2 Ontology

Ontology refers to claims and assumptions that are made about the nature of social reality, and the researcher has at his disposal the following ontological positions: objectivism, subjectivism and pragmatism (Schostak & Schostak, 2008). Objectivists argue that reality can be tested and verified (Nozick, 2001). Researchers who subscribe to this position try to find causes, effects and explanations of phenomena. This research is objective because it

objectively sought to build knowledge by testing specific research hypotheses to assist in the practice of personnel selection. Subjectivists argue that comprehending human behaviour consists solely of reconstructing the self-understandings of those engaged in performing those behaviours (Rorty, 1991). This research was not subjective because it sought to determine relationships between variables in a quantitative and objective way. According to Sayer (1993), pragmatists are not committed to any one system of philosophy or reality. Accordingly, individual researchers have freedom of choice in selecting procedures that best meet their needs in solving the problem at hand. This research is pragmatic because it systematically sought to provide a practical personnel selection model for use in personnel selection contexts.

1.11.3 The teleological dimension

According to the teleological dimension, a research study should be systematic and goal-directed (Akaaha, 1997). The problem statement outlined in this chapter together with the research questions and aims makes this research teleological. The goals of this research were further refined by stating the research hypotheses formulated in order to understand the influence of cognitive intelligence, emotional intelligence (ability and trait) and personality on job performance. The research is also teleological as it explicitly sought to offer practical and theoretical guidance in respect of the above variables and their relationships.

1.11.4 The methodological dimension

Research methodologies can be described as qualitative or quantitative (Leavy, 2017). According to Leavy (2017), quantitative research is employed by researchers seeking to classify features, count them, and construct statistical models in an attempt to explain what is observed. The researcher knows clearly in advance what he/she is looking for and all aspects of the study are carefully designed before data are collected. The quantitative nature of the problem statement, the quantitative nature of the data collected, and the setting of predetermined objectives makes this research a quantitative study. Earlier, Willig (2001) pointed out that qualitative research is deemed to be much more fluid and flexible than quantitative research in that it emphasises descriptively discovering novel or unanticipated findings. From a methodological point of view, this research did not lend itself to qualitative research methods.

In summary, methodological assumptions determine the research design or strategy a researcher may employ. The next section builds on the outlined methodological assumptions by describing the proposed research design for this research.

1.12 RESEARCH DESIGN

Babbie (2017) describes research design as a framework of methods for gathering, analysing and interpreting data to answer research questions. Research can also be classified into three categories; explanatory, exploratory, and descriptive (Babbie, 2017; Leavy, 2017). In this section, the research design is discussed in terms of the research approaches or types. The section also provides a discussion of validity and reliability of the study.

1.12.1 Exploratory research

An exploratory research design seeks to define the research questions and forms hypotheses about new and relatively unexplored research foci to generate new research insights (Leavy, 2017). The study is partly exploratory because it sought to obtain a deeper understanding of the relationship between cognitive intelligence, emotional intelligence, personality and job performance. It is only after understanding the relationship between these variables that a model for personnel selection can be constructed.

1.12.2 Descriptive research

According to Babbie (2017), descriptive research attempts to obtain an in-depth description of an area of research. It then follows that a descriptive study will require a theory to guide the collection of data. The conceptualisation of cognitive intelligence, emotional intelligence, personality, job performance, age, gender, job tenure, and job type, as described in this chapter, makes this study descriptive research. In addition, the study is descriptive because it also sought to describe the relationship between the variables to be investigated so that researchers can understand the personnel selection model better. Descriptive research also applies to the empirical study in terms of the use of descriptive statistics such as reporting of frequencies, means, variances, standard deviations and reliability analyses.

1.12.3 Explanatory research

An explanatory research approach attempts to explain the course of events, including the causality and interrelationships between those events or factors, and to relate how things

happened (Leavy, 2017). This study is explanatory because it sought to explain the relationship between cognitive intelligence, emotional intelligence (ability and trait), personality and job performance, as well as the moderating/interactional effects of age, gender, job tenure, and job type on these variables in predicting job performance.

1.12.4 Validity

The aim of research is to describe the population in terms of sample characteristics (Rosenthal & Rosnow, 2009). To achieve this objective, the research should be valid, that is, the study should accurately assess the concepts or variables under study (Albers, 2017). This can be explained by the extent to which the study is both internally and externally valid (Bryman & Bell, 2015). According to Bryman and Bell (2015), internal validity is concerned with whether or not the relationships between, or the causality of, variables manifesting from a study hold water. In other words, the outcome of the study should only be attributable to the variables studied and not to other variables outside the study. Bryman and Bell (2015) define external validity as the extent to which the results of a study can be generalised beyond the specific research context. The following two subsections focus on the way in which internal and external validity concerning both the literature review and the empirical study were achieved in this study. This will allow the researcher to make informed conclusions on the research questions that the study sought to answer.

1.12.4.1 Validity concerning the literature review

As part of efforts made to ensure internal validity concerning the literature review, only literature that was relevant to the study was reviewed. Accordingly, recent literature about the relationship between variables similar to those that the study sought to explore was used. Regarding external validity, the researcher reviewed literature which focused on the generalisability of the variables under study from empirical sources. It should be noted that the use of recent literature is relative because it might not have applied to the description and explanation of classical theories that would have developed over the years, especially where such literature was relevant to the conceptualisation of contemporary issues relevant to this research.

1.12.4.2 Validity with regard to the empirical research

Internal validity concerning the empirical study was achieved by the use of relevant and standardised assessment and measurement instruments. As part of efforts to uphold the

principles of external validity, the study employed measures of cognitive intelligence, emotional intelligence, personality and job performance, whose criterion-related, construct and content validities have been empirically determined.

1.12.5 Reliability

Reliability relates to the internal consistency of a measurement instrument (Bandalos, 2017; Gregory, 2004). Albers (2017) also defines reliability as the degree to which a study can yield the same result if repeated in a number of trials. For the empirical study, reliability was assured through the use of instruments whose reliability has been empirically verified. With regard to the literature review, reliability was achieved by reviewing relevant literature relating to theories and models that have been tested over time. The use of a representative sample ensured the reliability of the empirical study.

1.12.6 The unit of research

The present study was enshrined in the domain of personnel psychology and, in particular, individual assessments. In this regard, the level of analysis or unit of research was the individual. In the case of sociodemographic variables, the level of analysis was the group and the sub-group.

1.12.7 The variables

Rosenthal and Rosnow (2009) define a variable as any condition, trait or factor that can exist in varying amounts or types. There are usually two types of variables, dependent and independent variables. According to Rosenthal and Rosnow (2009), an independent variable is a condition or trait (in this case) that is changed (or whose varying amounts are monitored) by a researcher to find out how its varying amounts will affect the dependent variable. A dependent variable is a condition, trait or factor that the researcher focuses on to see how it responds to some manipulation or changes made to the independent variable (Rosenthal & Rosnow, 2009). Thus, the amount/number or value of the dependent variable will depend on the value of the independent variable.

For this study, the relationship between the following variables was the primary focus of this research:

- Cognitive intelligence (independent variable) and job performance (dependent variable)
- Ability emotional intelligence (independent variable) and job performance (dependent variable)
- Trait emotional intelligence (independent variable) and job performance (dependent variable)
- Personality (independent variable) and job performance (dependent variable)
- Cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality (independent variables); age, gender, job tenure, and job type (moderating variables); and job performance (dependent variables).

Figure 1.2 below illustrates the relationship between the variables

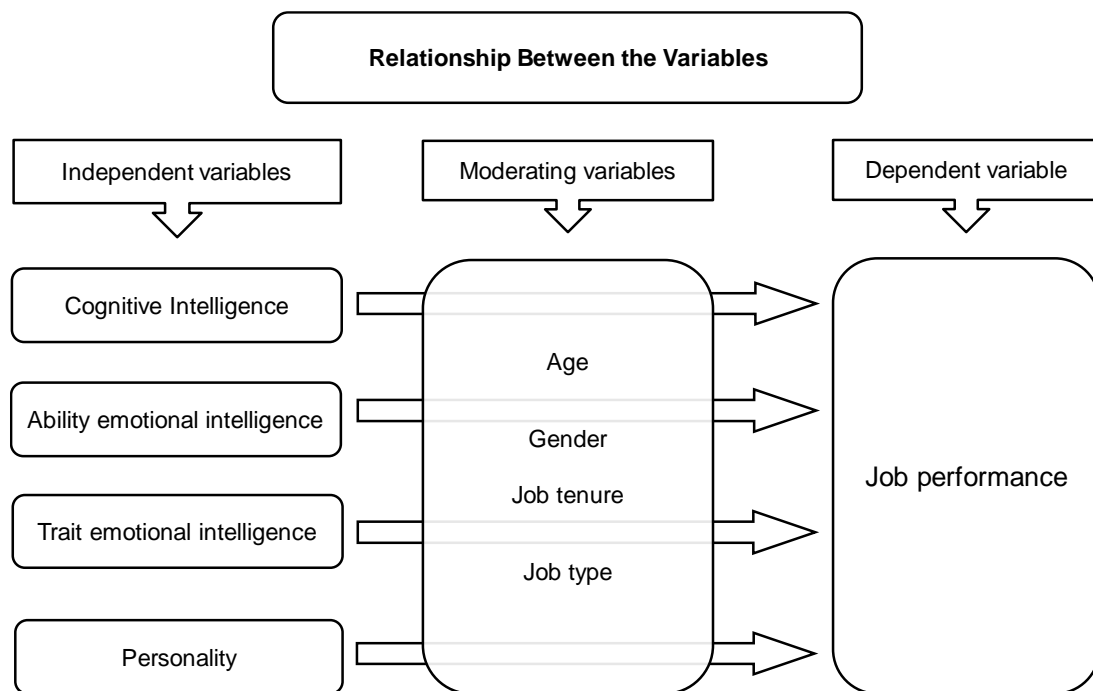


Figure 1.2. Relationship between the variables

Figure 1.2 illustrates the purpose of the study, which was to investigate the relationship between cognitive intelligence, emotional intelligence (ability and trait) and personality on job performance. The study also sought to establish how the sociodemographic variables of age, gender, job tenure, and job type moderate the relationship between cognitive intelligence, emotional intelligence (ability and trait) and personality, and job performance. It is only after understanding such relationships that a model for personnel selection can be constructed.

1.12.8 Delimitations

The study focused only on the relationship between five primary variables, namely, cognitive intelligence, ability emotional intelligence, trait emotional intelligence, personality, and job performance. The sociodemographic variables were confined to age, gender, job tenure, and job type. The study, therefore, focused only on the influence of cognitive intelligence, emotional intelligence (ability and trait), and personality on job performance, and the interaction effects of sociodemographic variables with the aforementioned variables in predicting job performance.

This research did not focus on other predictors of job performance like mixed model of emotional intelligence or spiritual intelligence. Also, the study limited itself to the definition of personality in line with the Personality Types theory of Myers and Briggs (Myers, 1987). Furthermore, cognitive intelligence was conceptualised as, and limited to, Spearman's (1904) general mental ability.

The study followed a cross-sectional research design, which means that respondents or research participants were studied at one particular point in time only (Teasdale & Ivanich, 2017). Therefore, the focus was not on establishing cause–effect relationships but merely the magnitude and direction of the associations between the variables. It is important to note that any other information that might have emerged from the data for this research was not the primary focus of this study. Such information or such serendipitous occurrences would be suggested as directions for future research.

1.12.9 Ethical considerations

Ethics in research refers to the minimum standards of moral principles that govern the behaviour of researchers (Rosenthal & Rosnow, 2009; Simelane-Mnisi, 2018). These include compliance with the social and professional obligations that the researcher owes to research participants, participating organisations and the educational institutions to which the researcher is affiliated. As part of efforts to uphold these requirements, the following ethical considerations were adhered to:

- The researcher adhered to the Research Ethics Policy of the University of South Africa.
- Approval for the research was obtained from the Research Ethics Committee of the Department of Industrial and Organisational Psychology (Appendix 1).

- Permission to conduct the research was obtained from the four participating organisations (Appendix 2).
- The researcher sought informed consent from the research participants.
- The researcher maintained the utmost confidentiality regarding the results.
- The researcher used relevant literature sources applicable to the study.
- The researcher conducted research within recognised parameters.
- All sources from which information and literature were obtained were acknowledged.
- Where the researcher lacked expertise, for example on data analysis, experts were consulted to ensure the fidelity and credibility of results.
- Participants were informed about the reasons for, and results of, the research.
- The thesis was compiled and all information reported according to prescribed guidelines.

1.13 RESEARCH METHODOLOGY

This research was conducted in two phases, which are described below.

PHASE 1: LITERATURE REVIEW

Literature was reviewed following the steps laid out below.

Step 1: Meta-theoretical framework: personnel selection and job performance in the Zimbabwean organisational context

This section provided the meta-theoretical framework for the study. Thus, the definition of the criterion of job performance as it was used in this study were given. The concept of personnel selection as it applies to the Zimbabwean organisational context was also described and explained. This information is contained in Chapter 2.

Step 2: Cognitive and emotional intelligence

This section consisted of literature about cognitive and emotional intelligence. The cognitive and emotional intelligence theories were discussed. This culminated in the discussion of relevant models of cognitive and emotional intelligence, their relationship with the sociodemographic variables, the adopted model for the study, and the implications for personnel selection. This information is contained in Chapter 3.

Step 3: Personality

In this step, the definition of personality was given with the aid of the review of personality theories, culminating in a discussion on the analytical conceptualisation of personality. This information is contained in Chapter 4.

Step 4: Theoretical integration

This step provided the theoretical integration of the constructs of cognitive intelligence, emotional intelligence (ability and trait), personality, and job performance. The section critically evaluated the literature presented by the research that provided models of the predictive power of these variables on job performance. The possible interaction effects of age, gender, job tenure, and job type were also provided. The section culminated in conceptualising a model for personnel selection as manifested in the literature. The implications of the conceptualised model for personnel selection practices were also discussed. This information is contained in Chapter 5.

Step 5: Formulation of research hypotheses

The research hypotheses were formulated in order to arrive at the objectives of the study. This information is contained in Chapter 5.

PHASE 2: EMPIRICAL STUDY

The following were the steps taken to conduct the empirical study:

Step 1: Statistical processing of data

This step outlined the data analysis procedures adopted and is contained in Chapter 6.

Step 2: Reporting the research results

The research results were presented in the form of tables, charts and diagrams. This information is contained in Chapter 7.

Step 3: Integration of the research findings, formulation of conclusions, discussion, limitations and recommendations

The researcher integrated findings from the empirical research with the findings of the literature review by way of corroborating or departing from prior research. The discussion of the research findings to ensure clarity and the logical interpretation of these results was done under this section. The final step involved drawing conclusions from the findings and discussing the limitations of the study. Recommendations from the study and areas for future research were be provided. This information is contained in Chapter 8.

1.14 CHAPTER DIVISION

The chapters for this thesis are presented as follows:

Chapter 2: Meta-theoretical framework: personnel selection and job performance in the Zimbabwean organisational context

This chapter described the conceptualisation of job performance and personnel selection as they related to organisational performance in general and the Zimbabwean organisational context in particular.

Chapter 3: Cognitive and emotional intelligence

This chapter discussed the conceptualisation of cognitive and emotional intelligence, as well as their relationship with the sociodemographic variables and job performance.

Chapter 4: Personality

The conceptualisation of personality were discussed in this chapter. The association of personality with job performance and sociodemographic variables, as well as with cognitive and emotional intelligence, were also discussed.

Chapter 5: Integration of theory

The integration of theory was made at the end of literature review. The primary purpose of this section was to integrate the concepts and the relationships between cognitive intelligence, emotional intelligence, personality, and job performance. Conceptual frameworks regarding

the formulation of theoretical relationships between the variables investigated also formed the core of this section. Finally, the literature review focused on the conceptualisation of a theoretical model for personnel selection and its implications for personnel selection contexts.

Chapter 6: Research method

This chapter described and explained the empirical study. The research hypotheses were restated to set the context for the empirical study. The population, sample size, and sampling techniques were described and discussed. Another important part of this chapter was to describe and discuss the measuring instruments, as well as providing justification for their use. Procedures for data collection and analyses were also provided.

Chapter 7: Research results

This chapter reported the research findings as displayed in the form of statistical tables, charts, figures, and graphs. Results were presented in the form of both descriptive and inferential statistics.

Chapter 8: Integration, discussion, conclusions, limitations, and recommendations

This chapter formed the culmination of the thesis. The researcher integrated, interpreted, and discussed results and made conclusions from the same. Building from the conclusions arrived at and the discussion of research findings, this chapter provided practical recommendations to industrial psychologists and organisations about personnel selection and made recommendations for future research.

1.15 CHAPTER SUMMARY

This chapter outlined rationale for investigating the influence of cognitive intelligence, emotional intelligence (ability and trait), and personality on job performance, as well as the moderation/interaction effects of age, gender, job tenure, and job type in this relationship. The chapter presented the background to and motivation for the research, which led to the problem statement. The justification or significance of the study from theoretical, empirical, and practical points of view was given. The research questions and corresponding research aims, together with the paradigm perspectives, were also provided. Meta-theoretical statements, theoretical concepts, and conceptual descriptions as they apply to the present research were

also discussed. This finally led to a discussion of the research design and methodology of the study, culminating in outlining the chapter division for the study.

Chapter 2 discusses the meta-theoretical framework, that is, the conceptualisation of job performance as well as the concept of personnel selection, as they apply to the Zimbabwean organisational environment.

CHAPTER 2: META-THEORETICAL FRAMEWORK: PERSONNEL SELECTION AND JOB PERFORMANCE IN THE ZIMBABWEAN ORGANISATIONAL CONTEXT

This chapter discusses the meta-theoretical concepts relevant for the present study. The chapter discusses methods and measures of personnel selection, which include the concepts of cognitive intelligence, emotional intelligence, and personality and justifies their inclusion in the study. The conceptualisation and criteria of personnel selection models as well as personnel selection practices in Zimbabwe will also be discussed. The chapter culminates in a discussion of the conceptualisation of job performance and the different models of job performance, as well as the relationship between sociodemographic variables and job performance. Job performance, as conceptualised within the Zimbabwean organisational environment, will also be discussed.

2.1 PERSONNEL SELECTION METHODS, MEASURES AND MODELS

This section discusses the conceptualisation of personnel selection, personnel selection methods and measures and personnel selection models.

2.1.1 Conceptualisation of personnel selection and personnel selection model

This section discusses the conceptualisation of personnel selection and personnel selection model.

2.1.1.1 Conceptualisation of personnel selection

Different authors have provided various definitions of personnel selection, all of which essentially conceptualise personnel selection as the process of choosing the right candidates for the right jobs (Afshari et al., 2014; Caldwell et al., 2018; Moscoso et al., 2017; Shehu & Saeed, 2016). Afshari et al. (2014) define personnel selection as the process of choosing candidates who possess the competencies and ability to perform the job in line with the set performance criteria, while Caldwell et al. (2018) conceptualise it as a process of choosing people who can significantly contribute to the economic value of the organisation. Moscoso et al. (2017) add that personnel selection is a process aimed at finding people who can meet the job performance criteria as defined by organisations. Thus, they (Moscoso et al., 2017) point out that for the personnel selection process to be done appropriately, one should be aware of the characteristics of the position, for example the tasks and functions, and to determine the extent to which the job applicants possess the knowledge, experience, cognitive

abilities, aptitudes, personality qualities and other characteristics (e.g., emotional intelligence) that are necessary for the applicant to do the job (i.e. to meet the job performance criteria).

Thus, in line with Moscoso et al.'s (2017) argument, it can be deduced that the multi-characteristic nature of a job position requires different competencies which are combined in order to perform to meet the job requirements. Personnel selection thus utilises a number of selection methods and measures in order to predict job performance with fidelity (Ployhart & Schneider, 2012). This combination of different personnel selection methods and measures forms a personnel selection model (Ployhart & Schneider, 2012). The next section discusses the conceptualisation of and criteria for personnel selection models.

2.1.1.2 Conceptualisation of and criteria for personnel selection models

A personal selection model is a combination of selection methods and measures (predictors), which is aimed at predicting the job performance criteria (Ployhart & Schneider, 2012). The concept of personnel selection models is based on the premise that, since job performance is a multi-criteria meta-concept, personnel selection should also involve multiple methods and measures to be able to predict the multi-nature of job performance criteria (Ployhart & Schneider, 2012). Each personnel selection method and measure should, therefore, explain the variance in job performance that is not explained by other personnel selection measures in a personnel selection model (Hattrup, 2012). The underlying assumptions of personnel selection models are that, as personnel selection measures are added to the model, predictive validity is improved (Hattrup, 2012).

As may be deduced from the foregoing, there are certain criteria that should characterise an amalgamation of personnel selection measures if they are to satisfy the requirements of a personnel selection model. An essential criterion for a personnel selection model is that each of the personnel selection methods or measures should be able to predict job performance at significant levels (Joseph & Newman, 2010). In addition, and as Joseph and Newman (2010) suggest, each of the personnel selection methods or measures should be able to predict job performance criteria that are not predicted by other methods or measures in a model. In other words, each personnel selection method or measure should represent a construct that differs from the construct represented by other selection methods or measures in the model. This requirement ensures that the personnel selection methods or measures included in a personnel selection model do not render each other redundant, but add incremental validity above and beyond other personnel selection methods or measures. The advantage of personnel selection models is that the combined or shared variance in the components of a

personal selection model is higher than the variance explained by a single personnel selection method or measures. The next section discusses, in detail, the different personnel selection methods, measures, and models.

2.1.2 Personnel selection models, methods and measures

Khorami and Ehsani (2015) point out that the selection process used to select people for the jobs in an organisation requires a robust and unbiased method or a combination of methods or measures. As discussed in the preceding section, a personnel selection model is a combination of different personnel selection measures aimed at increasing the predictive validity on job performance. Thus, before discussing the different personnel selection models, it is important to understand the extent to which individual personnel selection measures predict job performance. The next section thus discusses personnel selection measures.

2.1.2.1 Personnel selection methods and measures

This section discusses personnel selection methods and measures and their utility in predicting job performance.

(a) Application forms

Application forms consist of a series of questions that seek information about the candidate with regards to the job in question (Dale, 2003; Gatewood, Feild, & Barrick, 2016). They contain questions about the candidate's qualifications, interests, likes, motivations, and the like. However, whatever the contents of the application form, their purpose is to predict future job success. Gatewood et al. (2016) note that the application form only contains information that the applicant supplies and therefore may not be related to the abilities on the job. Research suggests that application forms may unfairly discriminate against certain candidates and therefore have little predictive validity (Gatewood et al., 2016; Salgado, Viswesvaran, & Ones, 2001). In summary, the application form may not add much validity to an assessment battery for personnel selection.

(b) The selection interview

The selection interview may be defined as a discussion between the job candidate and representatives of the employing organisation to assess the former's suitability for the job (Anderson, 2001; Cook, 2016). As an assessment tool, the selection interview has been

evaluated in terms of its capacity to predict job performance. Accordingly, it has long been established that the selection interview has poor predictive power relative to other assessment measures like cognitive intelligence and personality (Hunter & Hunter, 1984). Hunter and Hunter (1984) found a validity coefficient of 0.14 for the selection interview. In the interim, efforts have been made to structure the interview to raise the low validity coefficients. Cook (2016) points out that the validity of interviews can be improved if they are structured, thus resulting in coefficients of up to .51. As far back as 2001, Anderson (2001) had already argued that the so-called structured interviews are not interviews in the actual sense but resemble other psychometrically proven assessment tools such as critical incident analysis or the patterned expectation interview. In summary, the selection interview may be a useful method in personnel selection but are perhaps better used as a method of acquaintance formation.

(c) Personality

The measure of personality is assessed through personality tests. Personality testing customarily utilises questionnaires aimed at asking people about personality and behavioural preferences (Feist & Feist, 2009). These either classify people's characteristics regarding personality preferences, for example the Myers-Briggs Type Indicator (Myers & McCaulley, 1985), or in terms of personality factors, for example the trait factor theory of Costa and McCrae (1992). Personality questionnaires have no right or wrong answers. Research shows that personality explains up to 31% of the variance in job performance (Schmidt & Hunter, 1998). In summary, personality assessments are scientific because they are validated and may, therefore, add to the utility of a selection model by assisting in the assessment of traits and behaviour. The concept of personality will be fully discussed in Chapter 4.

(d) Assessment centres

Assessment centres consist of job simulation exercises that are designed to measure characteristic required by the job (Schmidt & Hunter, 1998). Assessment centres may include other occupational assessments like cognitive intelligence, emotional intelligence, and personality measures, and they seek to measure the behavioural domains of the candidates that are relevant to the job in question. Assessment centres have been tested in terms of predictive validity and have been found to explain about 37% of the variance in job performance (Schmidt & Hunter, 1998). This means that they are quite useful in personnel selection contexts. In summary, assessment centres appear to combine a number of psychological assessments and are therefore expected to have better utility than a single personnel selection method.

(e) Emotional intelligence

Emotional intelligence tests measure emotional competencies as they relate to the performance of jobs in question (Joseph & Newman, 2010). They measure the identification, utilisation, understanding, and managing of one's own and others' emotions (Mayer et al., 2002). These assessments have been tested in occupational settings and have been found to predict job performance at significant levels (O'Boyle et al., 2011). Some argue that ability emotional intelligence can predict job performance at similar levels as cognitive intelligence (Cote & Miners, 2006). In summary, emotional intelligence tests seem to tap into psychological functions that are not assessed by the selection methods stated hitherto (Joseph & Newman, 2010; O'Boyle et al., 2011). The inclusion of a measure of emotional intelligence in a personnel selection model is likely to add to the utility of the model. The concept of emotional intelligence will be fully discussed in Chapter 3.

(f) Cognitive intelligence

Cognitive intelligence or cognitive ability/aptitude testing entails the use of tests designed to measure the level of cognitive intelligence (mental ability) or the aptitude of job candidates (Anastasi & Urbina, 1997). Such tests include verbal, numerical, abstract and spatial reasoning tests, to name but a few (Gregory, 2004). These tests are usually timed and have an objective scoring method (Cote & Miners, 2006). Meta-analytic studies by Schmidt and Hunter (1998), Joseph and Newman (2010), and O'Boyle et al. (2011) have shown that tests of cognitive intelligence explain as much as 51% of the variance in job performance, pointing to their predictive power in this regard. In summary, cognitive intelligence appears to have the best predictive validity. This means that a selection model with cognitive ability as a component may yield good utility for personnel selection. This construct will be further discussed in Chapter 3.

(g) Other personnel selection methods

There are several other selection methods like graphology, work samples, job knowledge tests, references, job experience, integrity tests, and the like that are used for personnel selection (Motowidlo, 2003). In their meta-analysis, Schmidt and Hunter (1998) found that when used alone, work samples, cognitive ability, structured interviews and integrity tests predict job performance at .54, .51, .51, and .51 respectively. They (Schmidt & Hunter, 1998) also found that combining cognitive ability and structured interviews, and cognitive ability and

work samples, for example, would result in validity coefficients of .63 and .60 respectively. This seems to indicate that combining two selection methods or measures results in better predictive validity with regard to job performance. According to Joseph and Newman (2010), this happens because of the incremental validity resulting from the variance in job performance explained by additional tests. Thus, one would argue that using a battery of selection methods or measures is likely to result in better prediction of job performance.

2.1.2.2 Integration of personnel selection methods and measures

This section briefly outlines the concept of job performance before integrating and synthesising personnel selection methods and measures. The aim of personnel selection and related models is to predict job performance. Job performance criteria have generally been divided into two main areas, namely, task performance and contextual performance (Matula & Uon, 2016). According to Becton, Carr, Mossholder, and Walker (2017), task performance refers to in-role duties relating to the organisation's technical core. Becton et al. (2017) define contextual performance as organisational citizenship behaviour and other forms of discretionary work behaviours that assist in creating positive work contexts to support the technical core. When both task performance and contextual performance are combined, they produce what Motowidlo (2003) classically referred to as the unitary conceptualisation of job performance. Thus, the efficacy of a personnel selection method should be evaluated on the basis of its utility in predicting job performance criteria as defined above. The meta-theoretical concept of job performance will be discussed in more detail later in this chapter.

Table 2.1 below summarises the integration of personnel selection methods and measures as well as identifying the gaps that the research needs to address.

Table 2.1

Integration of Personnel Selection Methods and Measures

Selection method/ measure	Description	Usefulness	Gaps in research
Application forms	Forms designed for a job applicant to complete so that the information can be used to make selection decisions.	Not valid predictors of job performance.	More scientific methods need to be used to make better selection decisions.
Reference checks	Confirmation of work experience and job performance from significant others (universities, former employers, etc.) done by an employing organisation to predict the job candidate's performance.	Not valid predictor of job performance.	More scientific methods need to be used to make better selection decisions.
Work samples	A job candidate is given a real work problem or a simulated problem to solve as part of efforts to predict job performance.	Work samples predict job performance well if paired with other measures like cognitive intelligence.	No significant gaps in research.
Selection interviews	Face-to-face or telephonic discussions with the job applicant where the interviewer asks relevant questions to determine job suitability.	Structured interviews have been found to reasonably predict job performance. Interviews are used for acquaintance formation and meeting the job candidate.	No significant gaps in research.

Selection method/measure	Description	Usefulness	Gaps in research
Cognitive intelligence	Cognitive intelligence is sometimes called general mental ability (Spearman, 1904) and is assessed by paper-and-pencil or computer tests that measure domains of cognitive ability like verbal, numerical, and abstract reasoning.	Cognitive intelligence tests have been found to have high predictive validity for personnel selection.	The relationship between cognitive intelligence and other selection methods and measures, and sociodemographic variables needs to be ascertained to determine redundancy and interaction effects.
Assessment centres	A combination of selection methods and measures including work samples.	Useful because assessment centres use a combination of methods and measures that have been scientifically validated, which improves validity by way of the shared variance of job performance.	The relationship between the components of assessment centres with each other need to be ascertained to determine redundancy and interaction effects.
Emotional intelligence	Tests that are used to assess the way job candidates perceive, manage and utilise emotions of self and others to make the best decision about other people as part of efforts to manage relationships and the performance of others.	Useful because emotional intelligence taps into a characteristic that hitherto had not been tapped by other personnel selection methods and measures.	The relationship between ability emotional intelligence and cognitive intelligence needs to be verified to ascertain redundancy levels and therefore the utility of the construct.
Personality	Tests used to assess personality traits and personality types for personnel selection and development.	Useful because personality taps into characteristics that are not tapped by other selection methods and measures.	Application of personality types for purposes of personnel selection needs to be empirically verified.

Having discussed the integration of personnel selection methods, measures personnel selection models are discussed in the next section.

2.1.3 Personnel selection models

As a review of the literature shows, personnel selection models have generally been grouped into two major categories. First, there are models aimed at automating the decision-making processes (Kaluginaa & Shvyduna, 2014; Shehu & Saeed, 2016). This researcher labelled these models 'efficiency personnel selection models'. This name will be shortened to "efficiency models". These models are designed to make the process of selection more efficient by automating the personnel selection process. Such processes include automating résumé screening using a number of criteria such as years of experience, qualifications and skills (Kaluginaa & Shvyduna, 2014; Shehu & Saeed, 2016). The second group consists of models that employ regression techniques to determine the predictive power of different personnel selection measures (Joseph & Newman, 2010; O'Boyle et al., 2011; Ployhart & Schneider, 2012). The researcher termed these models 'predictive models of personnel selection', which will be shortened to 'predictive models'. Predictive models are therefore models that focus on explaining the relationship between job performance predictors and job performance criteria in order to improve the fidelity of predictor variables in predicting job performance (Ployhart & Schneider, 2012). The next section provides a discussion on efficiency models.

2.1.3.1 Efficiency personnel selection models

Efficiency personnel selection models are models that improve the efficacy of hiring decisions by automating personnel selection processes (Kaluginaa & Shvyduna, 2014; Shehu & Saeed, 2016). Kaluginaa and Shvyduna (2014) propose a personnel selection model for organisations that process bulk recruitment and selection. The method aims to reduce the work and to automate the decision-making with regard to personnel selection when matching thousands of résumés or applicants from different employers with suitable jobs. Kaluginaa and Shvyduna's (2014) personnel selection model acknowledges the presence of certain selection methods and measures, including cognitive tests, personality tests, and other selection methods and measures which may include tests of physical resilience. Their (Kaluginaa & Shvyduna, 2014) model involves four stages. The first stage involves electronically gathering vacancies and résumés from various data sources, which may include recruiters, professional websites, social media and the like. Secondly, the information is standardised into a format that is easy to code and analyse. The third stage, according to Kaluginaa and Shvyduna

(2014), consists of determining the best selection methods and measures to use for each job or group of jobs, which may include the assessment of psychological functioning. The last stage involves matching job candidates with employers.

The major advantage of Kaluginaa and Shvyduna's (2014) model of personnel selection is that it improves the efficiency of the personnel selection process by automating decision-making. The model also mentions the relevance of the psychological constructs of cognitive ability, personality, and integrity. However, the model is silent on the fidelity of chosen selection methods or measures, particularly the domains of psychological functioning, in predicting job performance. If the validity of selection methods or measures used in an automated personnel selection model such as Kaluginaa and Shvyduna's (2014) is not known, this may negatively affect the usefulness of the model in predicting job performance. The present study, therefore, sought to assist in closing this identified gap by providing a scientifically proven model for predicting job performance. This may assist those who automate selection models with scientifically determined personnel selection methods and measures.

Shehu and Saeed (2016) also propose a personnel selection model aimed at improving selection efficiency by automating the decision-making process. Their model involves building selection rules to decide on a combination of personnel selection methods and measures which include job experience and academic qualifications. Like Kaluginaa and Shvyduna (2014), the model proposed by Shehu and Saeed (2016) seeks to provide the basis for making efficient personnel selection decisions, although their model is silent on the issue of predictive validity. Thus, unlike Shehu Saeed's (2016) model, the present study sought to propose a model of personnel selection from a predictive rather than from an efficiency point of view.

Khorami and Ehsani (2015) offer a personnel selection model which they call Multi-Criteria Decision-making (MCDM). They (Khorami & Ehsani, 2015) argue that relying on a single or few personnel selection methods or measures may negatively affect the prediction of job performance. Thus, Khorami and Ehsani's (2015) model consists of elements that may be summarised in terms of three components. These components are personal traits, some of which can be inferred by psychological tests for personnel selection, managerial skills, and job experience. As part of efforts to increase the efficiency of personnel selection decision-making, the model is computerised. One would, however, argue that while the MCDM model mentions the use of psychological constructs, the predictive validity of the said methods is not clear. The predictive validity of the individual components of a personnel selection model must be verified to improve the fidelity of the personnel selection model in predicting job

performance. The present study sought to address this gap. The next section discusses predictive personnel selection models, which seek to address some of the pitfalls of the efficiency models.

2.1.3.2 Predictive personnel selection models

This section discusses predictive personnel selection models.

Ployhart and Schneider (2012) provide what they call the Classic Personnel Selection Model. Their model is predictive because it consists of predictor constructs and measures, on the one hand, and performance constructs and measures, on the other. According to Ployhart and Schneider (2012), the predictors in the model should measure knowledge, skills, abilities and other characteristics that assist the employee to meet job performance criteria. They add that such predictors include psychological constructs like cognitive intelligence and personality. In line with Motowidlo (2003), Ployhart and Schneider (2012) define job performance in terms of task performance (performance of the job's technical core) and contextual performance (behaviours that support the performance of the job's technical core). The personnel selection model proposed by Ployhart and Schneider (2012) is predictive because it emphasises the predictor–criterion relationship. However, Ployhart and Schneider's (2012) model appears to be theoretical in nature, since it is not supported by empirical research. The next paragraph discusses a more practical predictive personnel selection model based on meta-analysis.

Using meta-analysis, Joseph and Newman (2010) offer a predictive model of personnel selection based on the relationship between cognitive intelligence, ability emotional intelligence, the mixed model of emotional intelligence, personality, and job performance. Joseph and Newman (2010) offer a cascading model where cognitive intelligence was found to be the best predictor of job performance, followed by ability emotional intelligence (Mayer & Salovey, 1997) and then by the mixed model of emotional intelligence (Bar-on, 1997). The Big Five personality traits of Costa and McCrae (1992) were found to have the least predictive power in the model. However, Joseph and Newman (2010) found the Big Five to have the best incremental validity over and above cognitive intelligence, followed by mixed models of emotional intelligence. According to Joseph and Newman (2010), ability emotional intelligence has the lowest incremental validity over and above cognitive intelligence.

Joseph and Newman's (2010) predictive personnel selection model has at least two main advantages. Firstly, it assists industrial psychologists with knowledge of constructs that best predict job performance. Secondly, it assists in providing information about psychological

constructs that may be redundant in a personnel selection model. The exclusion of such redundant constructs for personnel selection is expected to save organisations time and money. However, the drawback of the predictive personnel selection models offered by Joseph and Newman (2010) is that they are based on meta-analysis as opposed to the actual empirical investigation of the relevant variables. Since they did not investigate the relationship between the components of the model and sociodemographic variables, Joseph and Newman (2010) propose that future research should look at the potential interaction effects between the predictor variables and the sociodemographic in predicting on performance.

While the personnel selection model proposed by this research may be similar to that proposed by Joseph and Newman (2010) in principle, the present study sought to empirically investigate the variables rather than relying on meta-analysis. In addition, the present study sought to investigate the moderation of the sociodemographic variables of age, gender, job tenure, and job type on the relationship between cognitive intelligence, emotional intelligence (ability and trait), personality, and job performance. The present study also used personality types rather than personality traits in the model.

As part of efforts for a model to fit the criteria of a personnel selection model, the present study included cognitive ability, emotional intelligence (ability and trait), and personality. These constructs are distinct (Joseph & Newman, 2010) and therefore are expected to improve the fidelity of the personnel selection model. Khorami and Ehsani (2015) point out that the process of selecting people for the right job in an organisation requires robust and unbiased personnel selection methods or measures or combination of personnel selection methods and measures. The present study also sought to investigate the moderating effects of the sociodemographic variables of age, gender, job tenure, and job type on the relationship between cognitive ability, emotional intelligence (ability and trait), personality, and job performance. This was expected to determine and avoid the biases that may be caused by the moderating effects.

2.1.4 Personnel selection practices in Zimbabwean organisations

This section outlines and discusses selection practices in Zimbabwean organisations, taking note that in the researcher's view, little has been published concerning selection practices for Zimbabwe. The economic challenges that have characterised Zimbabwe from the early 2000s to about 2016 led to a brain drain, with professionals immigrating predominantly to South Africa (Zhou, 2016). As a result of the brain drain, the country was left with few teachers and lecturers to facilitate learning at institutions of higher learning and education (Zhou, 2016). This in turn resulted in a deterioration in the quality of learning. Consequently, less competent

people have found their way into organisations (Zinyemba, 2014). According to Zinyemba (2014), although job candidates may be qualified on paper, they may not have enough knowledge to meet the various job demands. Against this background, if organisations use less scientific methods and measures of personnel selection, it may result in challenges regarding resourcing organisations with competent people, as they may not be able to tap into the underlying characteristics responsible for job performance.

According to Nguwi (2014a), a Zimbabwean industrial psychologist, many companies still depend on the traditional selection methods, which include the selection interview and resume review. This is despite the fact that the ineffectiveness of such methods has already been established by research (Nguwi, 2010). Nguwi (2010) also points out that the problem with the unstructured basic face-to-face interviews utilised by Zimbabwean organisations stems from the subjectivity of the judgements involved and the difficulty in controlling the interview process in a way that allows for fair and unbiased evaluation against a common set of criteria. Thus, if Zimbabwean companies do not adopt standardised and valid selection methods, measures, and models, they may continue to resource their organisations with unsuitable people, leading to reduced organisational performance.

In some quarters in Zimbabwe, it is believed that traditional methods of personnel selection like the selection interview may not predict job performance at the required levels when used alone (Nguwi, 2010). Commenting on the legal battles involved in terminating employment contracts as a result of poor performing employees in Zimbabwean companies, Nguwi (2011) believes that occupational assessments predict job performance better than other selection methods and should be used to decrease the chances of such eventualities. Nguwi (2011) further notes that since selection errors are costing Zimbabwean organisations time, money and new business, it is imperative that organisations achieve a fit between employees and their jobs by applying scientific personnel selection models. Nguwi (2014) proposes that the fit can be achieved by using more reliable measures of aptitude and personality.

Nguwi (2011) alludes to the fact that most organisations are not aware of the standard of ethics in the practice of personnel psychology. Pursuant to the preceding point, he further states that most companies are therefore enlisting the services of unregistered psychologists who generally use of psychometric assessment selection tools that have not been validated. These unregistered people may not have the knowledge of the validities and models of personnel selection. Yet research (e.g. Schmidt & Hunter, 1998) shows that the best selection model is one that utilises different selection measures to increase predictive validity. One may therefore conclude that for Zimbabwean organisations to move towards good practice, they must start

to use validated personnel selection methods or measures administered by qualified people. Accordingly, this study sought to propose a personnel selection model based on research and best practice for Zimbabwean organisations and organisations in similar environments.

In summary, it would appear that there are some disparities between the Zimbabwean organisational environment and good practice regarding personnel selection. As Nguwi (2010, 2014) argues, most Zimbabwean organisations seem to predominantly rely on the selection interview alone when filling positions. The selection interview has, however, long been found to have low predictive validity on job performance (Schmidt & Hunter, 1998). Even if they are structured, Anderson (2001) has long argued that such interviews are merely a representation of other selection methods like the critical incidents analysis. This study sought to close that gap by proposing a more scientific model for personnel selection which encompasses the influence of cognitive intelligence, emotional intelligence, and personality on job performance. Having discussed the meta-concept of personnel selection, the next section discusses the meta-theoretical concept of job performance.

2.2 JOB PERFORMANCE IN THE ZIMBABWEAN ORGANISATIONAL CONTEXT

The purpose of this section is to review the literature concerning the conceptualisation of job performance. General conceptualisation of job performance and its related theoretical models are provided. The section culminates in a discussion of job performance, focusing on the Zimbabwean organisational context.

2.2.1 Conceptualisation of job performance

This section provides a discussion on the conceptualisation of job performance. The theoretical foundations of job performance are also provided. Discussion of the theoretical models of job performance, the integration of the models and justification for the model of job performance adopted for the present study will also be discussed. Literature relating to the sociodemographic variables influencing job performance is also critically evaluated.

2.2.1.1 Definition of job performance

Research on the influence of various antecedents of job performance has employed different conceptualisations of the performance criterion (Dan et al., 2015; Rich, Lepine, & Crawford, 2010). Motowidlo (2003) provides four areas in which a definition of job performance should allow for variation that can be attributed to the differences in traits and attributes necessary for

job performance. These areas include the traits assessed in personnel selection processes, participation in learning and development programmes, motivational interventions, and environmental constraints. Grant (2008) views job performance as the effectiveness of individual behaviours that contribute to the objectives of organisations, while Rich et al. (2010) define job performance as the aggregated value of the set of behaviours to an organisation that an employee contributes both directly and indirectly to organisational goals. Mawoli and Babandako (2011) and Bozionelos and Singh (2017) conceptualise job performance as the degree to which an employee accomplishes the tasks and duties assigned to them and how the tasks accomplished contribute to the realisation of the organisational goals.

The definitions provided above do not only define performance regarding the employee behaviours required to meet organisational outcomes, but also point to the importance of the value of the behaviour that the organisation expects as the ultimate outcome of performance-related behaviour. Thus, according to Motowidlo (2003), variance in job performance should be viewed as variance in the expected organisational value of behaviour. This conceptualisation also seems to suggest that behaviours directed towards performance may be either positive or negative. One could argue that job performance should therefore be seen only as valuable behaviour that positively affects organisations. The concept of job performance is an important component of a personnel selection model for this study because from the foregoing discussion, it is apparent that it defines the criteria of organisational success. As will be seen later in this section, the major contribution made by the present study was to measure performance from a multifaceted approach involving task and contextual performance (Matula & Uon, 2016). This is expected to provide guidance on the predictor variables that best correlate with the job performance criteria.

A synthesis of the foregoing arguments seems to lead to three conclusions about the nature of job performance. First, an employee has to engage in a certain behaviours relevant to the job performance criteria. Second, the behaviours that an employee engages in should lead to the accomplishment of relevant tasks. Third, the relevant tasks should contribute to the realisation of value for the organisation. In addition, and from the literature reviewed in this section, one may also conclude that the evidence of the job performance criteria can be viewed as the ultimate results or the value to the organisation. From a performance measurement perspective, the arguments provided in this section pose a question to industrial and organisational psychologists. This question concerns whether performance should be viewed as behaviours that an employee engages to meet job performance requirements, or whether it (performance) should only be measured in terms of the actual results and outcomes

achieved in meeting the same job performance requirements. The next section addresses this discourse.

2.2.2 Performance as behaviour versus performance as results

Rich et al. (2010) argue that when analysing the conceptualisation of performance as behaviour, it is almost inevitable that one looks at performance as results. This is because the ultimate evidence of performance is the results that contribute to the organisational value. The definition of performance as results can be found in the work of Motowidlo (2003). According to Motowidlo (2003), performance results refers to conditions or states of people or things, changed by what employees do in ways that positively or negatively contribute to organisational effectiveness.

The behavioural approach of job performance conceptualises job performance as the behaviour engaged in or exhibited by individuals to meet certain organisational outcomes (Rich et al., 2010). Rich et al. (2010) argue that employee behaviour can be easily translated into organisational outcomes like efficiency, productivity and quality. If performance were viewed as results, there are a multitude of factors not under the individual's control that can affect the overall outcome of organisational goals or results (Borman & Motowidlo, 1993; Rich et al., 2010).

Proponents of the behavioural approach to job performance argue that behaviour is observable and is a medium through which organisational results can be achieved (Jundt, Shoss, & Huang, 2014; Motowidlo, 2003; Tufail, Bashi, & Shoukat, 2017). Motowidlo's (2003) suggests that if job performance were viewed as results, it would be difficult for industrial psychologists to develop measures to assess those results in the absence of the performance of the behaviour that leads to those results. This could be the case for situational variables that require a great deal of individual discretionary effort required to engage in behaviours that lead to the achievement of organisational goals despite constraints (Motowidlo, 2003; Tufail et al., 2017). However, it is important to note that defining job performance in terms of behaviour may also be misleading. This can apply in cases where some employees may engage in behaviours that do not contribute to the attainment of organisational goals. As suggested by Motowidlo's (2003) on job performance, the definition of job performance alludes to the fact that behaviours that lead to job performance are episodic. In the light of the existence of behaviours that facilitate job performance and those that do not affect job performance, it becomes therefore difficult to distinguish between behaviours relevant and those not relevant to job performance. From the foregoing arguments, research should,

therefore, provide evidence of the level of utility of task measures and behavioural measures with regard to the measurement of job performance. The relationship between job performance predictors and job performance criteria is discussed in more detail in Chapter 3. In addition, the literature on job performance reviewed so far seems to point to different conceptualisations of job performance, that is, performance as behaviour and performance as results. Thus, an important question arises as to whether job performance should be viewed as a unitary or a multidimensional construct. The next section addresses this question.

2.2.3 The multifactor and unitary conceptions of job performance

Campbell's multifactor conception of job performance and the unitary conceptualisation of job performance will be discussed in this section.

2.2.3.1 Campbell's multifactor model

The multifactor conceptualisation of job performance is found in the works of Campbell (1990) in which he identified eight behavioural performance dimensions which he uses to describe the domain of job performance. These factors are listed below:

- *Task-specific job proficiency.* This factor includes behaviours that an individual undertakes as part of efforts to meet the core technical requirements of a job.
- *Non-job-specific task behaviour or proficiency* pertains to those behaviours differentiating how well an individual can perform tasks not unique or relevant to a particular job, but which are required by most if not all jobs in an organisation.
- *Oral and written communications* which relate to the level at which an individual can write or communicate/speak with audiences.
- *Effort.* This factor relates not only to the level at which someone commits to the job but also how intensely one accomplishes job tasks.
- Job performance might include *maintaining some level of personal discipline.* This factor refers to the level and extent to which someone avoids negative behaviour, which may include alcohol abuse, absenteeism or breaking the rules.
- Interdependent job performance may include *facilitating team and peer performance.* This factor describes the level at which an individual supports, assists and develops peers. It also involves the ability to maintain teamwork for the purposes of maintaining a group or team as an effective unit.

- *Supervision* involves how well someone directs subordinates towards the desired course of actions through interpersonal or face-to-face interaction.
- *Management (including administration)* includes the ability to perform other non-supervisory functions of management. These may include budgeting and budgetary control, mobilising and organising resources, and the like (Campbell, 1990).

Perhaps Campbell (1990) can be credited for bringing attention to the multifactor nature of job performance and the need to view job performance criteria from different angles. In a follow-up study supporting the multifactor model, Campbell, Gasser, and Oswald (1996), however, deny that the eight factors are present in every job or that they fully define the criterion of job performance, although they can explain a significant variance in job performance. Motowidlo (2003) takes issue with Campbell's (1990) conceptualisation of job performance for failing to provide examples of behavioural episodes that have varying levels of expected organisational value. Pursuant to the foregoing, Motowidlo (2003) argues that any criterion for job performance should be bipolar, stating both behaviours with positive organisational outcomes and those with negative ones. Many researchers have tested the multifactor conception of job performance and subsequent models include the two-factor model by Williams and Anderson (1991), the three-factor model (Coleman & Borman, 2000) and the four-factor model (Zhong & Farh, 2003). The multidimensional conceptualisation of job performance has led this researcher to distinguish between two primary domains. These domains are task performance, which focuses on the extent to which an employee performs the technical core tasks of the job, and contextual performance, which relates to extra-role behaviours (OCBI and OCBO) which also assist in adding expected value to the organisation (Bozionelos & Singh, 2017).

2.2.3.2 The unitary conceptualisation of job performance

Proponents of the general factor conception of job performance argue that job performance is unitary and can be explained by a general factor similar to general intelligence (Schmidt & Hunter, 2004; Viswesvaran, Schmidt, & Ones, 2005). In an early study, Viswesvaran et al. (2005) performed a meta-analysis and found out that there might be a general factor in supervisory ratings of job performance. They argue that the factor may explain 49% of the total variance in the job performance ratings. Other forms of empirical evidence from Viswesvaran et al. (2005) seem to have further revealed the existence of a common factor of job performance. The major challenge of the unitary approach may relate to the search for a unitary measure that is resistant to any factors that may confound the relationship between predictor variables and the criterion. The conceptualisation of job performance as either

multifactor or unitary has resulted in models that attempt to explain the criterion of job performance and these are discussed in the next section.

A synthesis of the literature on job performance reviewed so far points to some conclusions. It appears that there is a consensus in the literature that job performance can be defined in terms of three tiers. Thus, in line with the foregoing statement, an employee has to engage in behaviours, those behaviours should lead to the accomplishment of relevant tasks, and that accomplishment of the relevant tasks should contribute or lead to the realisation of organisational value. However, there are different views on whether job performance should be conceptualised only in terms of the results (ultimate contribution of value to the organisation) or the behaviours that are engaged in when performing the tasks (Motowidlo, 2003, Rich et al., 2010). While some researchers like Schmidt and Hunter (2004) and Viswesvaran et al. (2005) argue that job performance is a unitary construct, others, for example Williams and Anderson (1991), Coleman and Borman (2000) and Zhong and Farh (2003), propose multifactor conceptualisations of job performance. However, more recent research has shown that performance is two-dimensional, that is, task performance and contextual performance (Bozionelos & Singh, 2017). The next section discusses these two theoretical models of job performance.

2.2.4 Theoretical models of job performance

Bozionelos and Singh (2017) distinguish between task and contextual performance. Practice in personnel selection seemed to focus only on one part (task performance) of the performance domain, excluding another part (contextual performance) that is also essential in contributing to organisational effectiveness (Bozionelos & Singh, 2017; Miao, Humphrey, & Qian, 2017). The theoretical models of task and contextual performance as criteria of job performance are discussed in the following two sections.

2.2.4.1 Task performance

Task performance, which is sometimes referred to as in-role behaviour, refers to the employees' effectiveness in performing activities that contribute to the organisation's technical core tasks (Borman & Motowidlo, 1997; Bozionelos & Singh, 2017; Jiao & Hardie, 2009; Miao et al., 2017; Varela, Salgado, & Lasio, 2010; Williams & Anderson, 1991). Varela et al. (2010) view task performance as behaviours focused on core production activities. Motowidlo and Van Scotter (1994) conceptualise task performance as behaviours that produce goods and services by supporting the technical core that makes the production possible. Motowidlo

(2003) also views task performance as those activities usually spelt out in job descriptions. According to Motowidlo (1993), task performance involves those activities aimed at transforming raw materials into finished goods and services. These activities may include selling merchandise, lecturing or teaching, operating a machine, and the like. He (Motowidlo, 1993) also posits that the other part of task performance involves aspects like coordination, leading and supervising others, which are expected to improve the delivery of the finished product or the provision of services to customers. In other words, these tasks, when performed well, will lead to behaviours with expected value for the organisation. When poorly performed, however, the same behavioural episodes may lead to negative outcomes for organisations. Motowidlo (2003) argues that task performance involves both behavioural episodes representing tasks and activities performed well and other behavioural episodes leading to tasks being poorly performed.

Research suggests that viewing job performance solely as task performance presents difficulties regarding criterion definition and has therefore been challenged (Dalal, 2005). This, therefore, suggests that there could be more categories of employee behaviours that influence organisational effectiveness other than task performance. These categories may be classified under contextual performance.

2.2.4.2 Contextual performance

The term contextual performance, which was coined as back as 1983, has been viewed as organisational citizenship behaviour (Podsakoff, Mackenzie, Moorman, & Fetter, 1990; Smith, Organ, & Near, 1983). Organisational citizenship behaviour refers to extra-role behaviours that contribute to organisational performance because they affect the psychological, social and organisational contexts of work (Jiao & Hardie, 2009; Matula & Uon, 2016; Motowidlo, 2003). According to Motowidlo (2003), contextual performance may take various forms. One form involves an employee influencing others by engaging in behaviour valuable for employees' performance. For example, one may assist others in their work, or assist in diffusing conflict among colleagues. This is likely to improve the interpersonal climate, which in turn may improve the general work mood and motivation to work. In this way, contextual performance is achieved because the ultimate effect of contextual behaviour is to improve organisational effectiveness and performance. In addition, such behaviour is also likely to be imitated by others and this may also lead to positive outcomes with respect to organisational performance. In addition, such actions are likely to lead to positive group affect, team development and cohesiveness, which in turn are expected to lead to organisational effectiveness.

The second form of contextual performance occurs when individuals engage in behaviours that may lead to the improvement in their own performance (Borman & Motowidlo, 1993). These may include developing one's skills, which is likely to lead to an improvement in the performance of the organisation. Similarly, Motowidlo (2003) argues that things like alcohol abuse may lead to negative organisational performance as they reduce the individual's ability to perform. Another form of contextual performance occurs when employees behave in ways that affect the organisation's resources positively (Bozionelos & Singh, 2017). For example, if a person uses personal resources to support the organisation, this falls under contextual performance. Another way involves saving organisational resources.

Empirical research has demonstrated that there are two broad areas of organisational citizenship behaviours (Bozionelos & Singh, 2017; Williams & Anderson, 1991). These include organisational citizenship behaviours directed towards the organisation (abbreviated as OCBO) and behaviours that are directed at the individual (OCBI). Williams and Anderson (1991) proposed the job performance measure used for the present study and therefore their work will be discussed further here. According to Williams and Anderson (1991), OCBO consist of behaviours that benefit the organisation in general. These may include behaviour like giving formal notice when unable to come to work or adhering to the informal rules and regulations of the organisation (Williams & Anderson, 1991). Williams and Anderson (1991) define that OCBI as behaviours that directly benefit other individuals' performance and therefore indirectly benefit organisational performance. These behaviours include helping other employees who are absent. Williams and Anderson (1991) contend that these two forms of job performance criteria are distinct from each other because they have different antecedents. In addition, research has long suggested that the three job performance domains (i.e. task performance, OCBI and OCBOs) are theoretically distinct (Dalal, 2005; Sackett, Berry, Wiemann, & Laczko, 2006).

2.2.5 Synthesis and evaluation of the conceptualisation of job performance

In summary, a synthesis of the literature on job performance reviewed so far points to some conclusions which are discussed in this section.

Job performance may be conceptualised in terms of three areas restated as follows: First, an employee has to engage in a specific behaviour or certain behaviours relevant to the job performance criteria. Second, the behaviour or behaviours that an employee engages in

should lead to the accomplishment of relevant tasks. Third, the relevant tasks should contribute to the realisation of value for the organisation.

While there is general consensus that job performance relates to engaging in behaviour to accomplish tasks that contribute to the value of organisations, the literature suggests that the job performance criteria may be viewed in two ways, that is, job performance as results and job performance as behaviour. As stated earlier, proponents of the results-view of job performance argue that performance measurement should focus on the outcomes of performance behaviour, rather than focusing on the behaviour itself. A counter-argument is that conceptualising performance as results disregards other factors (outside the control of the employee) that can augment or inhibit job performance without the employee doing anything (Motowidlo, 2003). This is likely to contaminate the job performance criteria. From a job performance measurement, viewing performance as behaviour is likely to assist industrial psychologists to develop predictor measures of job performance, which may not be easy if performance is viewed as results.

The conceptualisation of performance as either results or behaviour has also led to the other conceptualisation of job performance as either a unitary or a multidimensional concept. Proponents of the unitary conceptualisation of job performance argue that there is a general factor of job performance as measured by supervisory ratings (Viswesvaran et al., 2005). Those who proposed the multidimensional nature of job performance, like Campbell (1990), argue that job performance consists of both task-specific behaviours which determine what should be achieved (results) and non-task specific behaviour that focuses on how tasks are achieved (behaviour). The unitary versus multifactor discourse has led to the conclusion that job performance can be conceptualised in terms of two models, namely, task performance and contextual performance (OCBI and OCBO) (Becton et al., 2017; Bozionelos & Singh, 2017).

The following section integrates the theoretical models of job performance.

2.3 INTEGRATION OF THEORETICAL MODELS OF JOB PERFORMANCE

This section integrates job performance models and provides justification for the model chosen for the present study. Table 2.2 presents the researcher's integration of theoretical models.

Table 2.2

Integration of Job Performance Models

Dimensions	Models		
	Task Performance	Contextual Performance	
	(Various authors, e.g. Borman & Motowidlo, 1997; Varela et al., 2010; Williams & Anderson, 1991)	Organisational Citizenship Behaviour directed at the individual (OCBI) (Williams & Anderson, 1991)	Organisational Citizenship Behaviour directed at the organisation (OCBO) Williams & Anderson, 1991)
Construct definition	Performance of the core task of the job responsible for the conversion of raw materials into finished goods and services and the selling of those goods and services.	Extra-role behaviours that contribute to job performance indirectly by assisting other individuals with their own performance.	Extra-role behaviours that contribute to job performance indirectly by acting in a manner that aids organisational performance.
Usefulness/ application to personnel selection	Useful in that it focuses on whether performance as set out in the job description or performance contract has been achieved.	Assist in showing social and psychological factors directed at other individuals that are also important and facilitate task performance for self.	Assist in showing social and psychological factors directed at the organisation that are also important and facilitate task performance for the organisation.

The purpose of this study was to propose a model for personnel selection encompassing the influence of cognitive intelligence, emotional intelligence (ability and trait), and personality on job performance. The study also sought to find out how the sociodemographic variables of age, gender, job tenure, and job type moderate such a relationship. For personnel selection to be scientific, the criterion of job performance has to be robustly defined. This is important in personnel selection because loosely defined or contaminated job performance criteria may lead to poor selection decisions and may also compromise the fidelity of personnel selection methods or measures used.

Against the background above and in line with the preceding paragraph, the present study adopted a measure of job performance as presented in Table 2.2 above. As already stated and long concluded from the literature, an employee has to engage in certain behaviours relevant to meeting the job performance criteria. Those behaviours should lead to the accomplishment of relevant tasks, and the relevant tasks should contribute to the realisation of value for the organisation (Motowidlo, 2003). The literature reviewed in this study seems to suggest that whether or not job performance is conceptualised as results or behaviour, or as unitary or multidimensional, all these arguments trickle back to the conceptualisation of job performance in terms of task performance and contextual performance (OCBI and OCBO).

Task performance relates to “what” needs to be done and behaviours relate to the “how” of job performance.

The choice of the model does not disregard the existence of different conceptualisations and dimensions of job performance, for example the unitary approach. Instead, it is this researcher’s view that testing the influence of a number of variables (cognitive intelligence, emotional intelligence (ability and trait), and personality) on job performance requires using a model with multiple dimensions of performance criteria, which have been empirically tested. The study also used multiple criteria of job performance to understand the relationship between the predictor variables and the criteria of job performance in order to contribute to theory and practice in terms of predictor variables that best predict the performance criteria.

2.3.1 Variables influencing job performance

The relationship between age, gender job tenure, job type and job performance is discussed in this section. Research suggests that these sociodemographic variables may influence some predictor variables pertaining to the study (Joseph & Newman, 2010; O’Boyle et al., 2011). Thus, to the extent that they affect the predictor variables, it is probable that the sociodemographic variables may moderate the relationship between the predictor variables and job performance. It is therefore vital to understand the extent to which the sociodemographic variables influence the predictor variables so that relevant advice like the differential norming of personnel selection assessments can be proposed.

2.3.1.1 Gender

Research on the relationship between gender and job performance has been somewhat scant and has been found to have mixed results. Although females constitute of 52% of the population in Zimbabwe (Zimbabwe National Statistics Agency [ZIMSTAT], 2015), very little appears to have been written about gender differences in occupational settings in the Zimbabwe organisational environment. In a study on gender determinants of job performance, in which absence, commitment to the organisation and overall performance were criterion variables, Joshi (1993) found no significant relationship between gender and job performance as measured by performance evaluations. Gede (2001) found that female teachers were more likely to be satisfied with their jobs than their male counterparts and therefore performed better. Inyang (2008) also found that female principals were more caring, compassionate and concerned compared to male principals and this led to better performance in educational management. In their study on gender as a moderator of the relationship between

organisational citizenship behaviour (OCB) and turnover intention, Khalid, Jusoff, Ali, Kassim, and Rahman (2009) found that gender had moderating effects on turnover, suggesting that females have more OCB than males. Other earlier studies by Kark and Waismel-Manor (2005) and Farrel and Finkelstein (2007) confirm that women engage in OCB more than men. The studies mentioned here seem to point to the moderation of some other variables inherent in females that indirectly lead to better job performance than men. However, the studies do not pinpoint the true relationship between gender and behaviours that lead to expected value for the organisation. This calls for research to clarify such a relationship with all the relevant criteria of job performance.

2.3.1.2 Age

Using the detrimental theory of ageing, Sarmiento, Beale, and Knowles (2007) argue, in line with Giniger, Dispenzieri, and Eisenberg (1983), that some abilities are likely to decline with increasing age. In an old study by Czaja and Sharit (1998), in which task performance was measured in terms of quantity of work and errors for age groups of 0–39 years, 40–59 years, and 60–75 years, younger people generally performed better. Research has also shown that performance increases with age until subjects reach their mid-career stage, after which performance declines with age (Ali & Davies, 2003). As far back as 1983, Giniger et al. (1983) found that older employees outperformed younger ones in occupations or jobs that required speed and skills. In their study on the determinants of OCB in the telecommunications industry in Pakistan, Kashif, Khan, and Rafi (2011) found that age was negatively correlated to OCB. In addition to the preceding statement, the evidence provided in this paragraph seems to suggest that the relationship between age and job performance appears to be non-linear and inconclusive. In conclusion, the implications are that the relationship between certain predictor variables is likely to be moderated by age effects which vary for different age groups.

2.3.1.3 Job tenure

There are some older studies that look at the relationship between job experience (as a proxy for job tenure) and performance. Schmidt, Hunter, and Outerbridge (1986) point out that job experience should be expected to lead to better performance as it provides an opportunity for learning. In a later study, Schmidt and Hunter (2004) posit that if job experience is predictive of job performance, then one should expect the validity of other predictors like general mental ability to diminish in sympathy with increasing job tenure. In fact, Schmidt and Hunter (2004) point out that the ability to learn depends on one's level of cognitive intelligence. This therefore means that it is cognitive intelligence that leads to differential job performance rather than job

experience. Schmidt and Hunter (2004) refer to a study conducted by Schmidt, Hunter, Outerbridge, and Goff (1988) in which low cognitive intelligence and high cognitive intelligence groups were measured in terms of job performance. It would be expected that the predictive validity of general mental ability would decrease with increasing job tenure, as individuals with low cognitive intelligence gain in terms of job performance as a result of job experience. Their results, however, showed a limited increase in performance as tenure increased. Nevertheless, job experience explains some variance in job performance as shown in a meta-analytic study by Hunter and Hunter (1984). Their study found the predictive validity of job tenure on job performance to be .18. Avolio, Waldman, and McDaniel (1990) found job experience to be a reasonable predictor of job performance. However, Schmidt and Hunter (2004) caution that the relationship between job experience and job performance is nonlinear, as it is higher (.49) for tenures of zero to three years but decreases to as low as .15 for tenures of 12 years and above. This information is important when measuring the criterion. Some correctional measures may therefore need to be instituted to reduce criterion contamination resulting in differential tenure among employees.

2.3.1.4 Job type

The relationship between job type (technical jobs; low emotional labour versus jobs requiring soft skills; high emotional labour) and performance should be evaluated in line with the relationship between stable predictors of job performance and the criterion. One would argue that the extent to which a stable predictor variable of job performance shows occupational differences determines whether job type is stable or not concerning its relationship with job performance. In line with the foregoing, there is ubiquitous evidence suggesting that cognitive intelligence as measured by general mental ability is a strong predictor of job performance across all occupational categories (Joseph & Newman, 2010; O'Boyle et al., 2011). To this end one could argue that job type may have minimal influence on job performance. Nevertheless, Schmidt and Hunter (2004) found that job type has a stronger relationship with job performance in jobs with repetitive tasks than in those that are constantly changing. This is because if one performs tasks that are repetitive one is likely to develop some form of automation and will therefore be able to do the job better than one in which the tasks are constantly changing. Chou and Pearson (2011) carried out a study on information technology professionals and OCB, from which they concluded that non-information technology professionals (high emotional labour) had better OCB than information technology professionals (low emotional labour). This perhaps suggests that people occupying technical jobs will have less OCB than people doing non-technical jobs and personnel psychologists should be aware of this.

2.3.1.5 Summary of variables influencing job performance

In summary, research suggests that there is no significant relationship between gender and job performance. Concerning job experience, however, research has found a limited relationship with job performance. The same conclusion can be made concerning the relationship between job type and job performance. However, age has been found to have a curvilinear relationship with job performance, where the relationship is high when one is young and then drops after mid-career. From the literature reviewed so far, it appears that of the demographic variables investigated by the present study, only age might have a relationship with job performance, although this is non-linear.

2.4 JOB PERFORMANCE AND THE ZIMBABWEAN ORGANISATIONAL ENVIRONMENT

The economic decline that characterised Zimbabwe between 1997 and 2011 has had profound effects on the quality of life and organisational performance (Nguwi, 2011). Before Zimbabwe adopted a multi-currency monetary regime, unofficial inflation, which reflected a true picture about inflation was pegged at 76.9 billion per cent in November 2008 (Hanke & Kwok, 2009). This indicates the extent to which organisational performance would be negatively affected, as such a high level of inflation means that prices were increasing at a super-exponential rate and this would also have had ripple effects on job performance. Commodities were also scarce on the market, meaning it would be very easy to sell products and services. Against this background, performance was conceptualised only in term of results. For organisations, most sales targets would have been achieved, since inflation would merely have done the work with little or no effort. This means that even if people did not do anything, they could be said to have performed because sales and revenue targets would have been met anyway. Thus, in this case, performance was reviewed as results.

It is interesting to note that viewing performance as results runs counter to best-practice conceptualisations of job performance in terms of behaviour. In line with Motowidlo (2003) and Rich et al. (2010), job performance should not be conceptualised only in terms of results. Instead, they posit that it should be viewed in terms of the behaviours that lead to expected value for the organisation. Specifically, Motowidlo (2003) argues that if performance is viewed as results, then there a number of factors in the organisation and in the marketplace that may facilitate the achievement of results other than individual performance. The preceding statement appears to be the case with regard to the conceptualisation of job performance in

Zimbabwean organisations. The problem with this conceptualisation is that, if performance is achieved as a result of other factors outside the individual's control, then the true relationship between any personnel selection method or measure acting as a predictor and the criterion will be confounded. In such cases, it will be difficult to ascertain the utility of the personnel selection methods or measures used. This study therefore sought to incorporate an all-encompassing definition of job performance as justified above. Specifically, the inclusion of task performance as one of the job performance criteria ensures that the person actually engages in behaviour leading to expected value for the organisation in line with Motowidlo (2003), rather than looking only at the end results in isolation.

One of the significant effects of hyperinflation and the economic problems in Zimbabwe was the brain drain (Zhou, 2016). This severely affected most organisations because they lost skilled labour (Zinyemba, 2014). One may therefore conclude that organisations attempted to cover the gap by hiring the only available, but not the best, skills on the market. With high staff turnover, many new people joined new organisations, and this might have affected organisational culture. Employers were mainly interested in meeting the results expected by shareholders rather than ensuring a fit between the person and the company culture (Vere, 2011). Thus, performance was, and still is, viewed in terms of results. Vere (2011) notes that over the years few Zimbabwean companies participated in customer service enhancement forums, perhaps due to the low priority that these issues were accorded. This seems to suggest that performance in Zimbabwe has over the years been focusing mainly on results, without much consideration being given to the behaviour needed to achieve those results. Defining job performance as a narrow criterion is likely to contaminate the criterion; thus, a broader and more comprehensive criterion of job performance is required to guide personnel selection initiatives, especially in the Zimbabwean organisational context.

Research shows that job performance is multifactor, consisting of in-role and extra-role behaviours (Bozionelos & Singh, 2017; Campbell, 1990; Motowidlo, 2003, Williams & Anderson, 1991). The conceptualisation of job performance as indicated in the preceding paragraph seems to indicate that the fact that Zimbabwean organisations value the achieving of results regardless of the behaviour is in line with the culture of the organisations. In such cases, it is likely that organisations might forget the importance of issues to do with the "how" of achieving organisational performance. The conceptualisation of job performance in terms organisational citizenship behaviour (Rich et al., 2010) seems to point to the importance of the role played by productive behaviour in contributing to the criterion definition.

The concept of organisational culture can be interpreted in terms of organisational citizenship behaviours directed at both the organisation and the individual. Therefore, if Zimbabwean organisations are to move towards best practice in terms of personnel selection, they should consider defining the criterion not as results but as task and contextual performance. Once they do this, it may become easier to relate predictor variables to the criterion. Consequently, this results in better selection decisions for the betterment of organisational performance. Even if the job performance is viewed as unitary (e.g. Schmidt & Hunter, 1984) or multifactor (Williams & Anderson, 1991), Zimbabwean companies will need to include both the task and the contextual performance domains of the criterion as they select people to fill jobs.

In summary, there appears to be a consensus among job performance researchers with regard to the conceptualisation of the criterion. It has been shown that the definition of performance as results is likely to be misleading, since other things apart from individual performance may lead to expected results. Unlike what seems to be the conceptualisation of job performance in Zimbabwe (performance as results), there also seems to be consensus that performance should be viewed as behaviour that leads to expected value to the organisation. While researchers agree on the latter, different researchers have proposed different conceptualisations of performance, either as unitary or as multifactor. Those who argue for a unitary perspective of job performance argue that there are many behaviours and antecedents that can lead to or facilitate task performance. Further, proponents of the unitary measure of performance propose from a psychometric point of view, that research reveals a general common factor of supervisor ratings with regard to job performance (Schmidt & Hunter, 1984). Choosing the former, that is, a unitary perspective, may suggest that theories and research may have neglected or devalued the role of the multifaceted conceptualisation of job performance. Therefore, defining the criterion as multifactor as proposed in this study is likely to assist organisations in general, and Zimbabwean and perhaps African organisations in particular, to gain a deeper understanding of the differential effects of various personnel selection methods and measures on job performance criteria. The next section briefly introduces the literature on the relationship between cognitive intelligence, emotional intelligence, personality, and job performance.

2.5 COGNITIVE INTELLIGENCE, EMOTIONAL INTELLIGENCE, PERSONALITY TYPES, JOB PERFORMANCE AND PERSONNEL SELECTION

The present study sought to investigate the influence of cognitive intelligence, ability, emotional intelligence, trait emotional intelligence, and personality on job performance among

supervisory and professionally qualified and experienced specialists in Zimbabwean private and publicly listed organisations. The major psychometric assessment tests used in organisations include tests of cognitive intelligence, personality, and emotional intelligence, as well as tests of motivation like the occupational interest inventories (Nguwi, 2014a). Research has shown that cognitive intelligence is perhaps the single best predictor of job performance across jobs (Joseph & Newman, 2010; O'Boyle et al., 2011). Notwithstanding the fact that the variable of cognitive intelligence has been extensively tested in occupational settings, it has been included in this study as part of efforts to build a personnel selection model. In addition, some studies (Cote & Miners, 2006) seem to suggest that ability emotional intelligence is cognitive intelligence in predicting job performance. The quest to investigate the validity of this finding then also justifies the inclusion of both cognitive and ability emotional intelligence in this study.

Research evidence suggests that there are three main streams of emotional intelligence, namely, ability, trait and mixed models of emotional intelligence (Ashkanasy & Daus, 2005). It is this researcher's view that a more in-depth understanding of the relationship between emotional intelligence and job performance, as well as with other predictor variables, requires the use of different measures of emotional intelligence. This study has opted for trait and ability emotional intelligence because unlike the mixed model, these two models are distinct measures of emotional intelligence. Mixed models are a mixture of abilities and traits and are therefore unlikely to provide a clear picture of the relationship.

There are various personality models in the literature, but the trait factor model (Costa & McCrae, 1992) and the personality type theory of Myers and Briggs (Myers, 1987) have been considerably researched in occupational settings (Joseph & Newman, 2010; Leary et al., 2009). Of the two, the five-factor model of McCrae and Costa (1992) seems to have been more extensively tested in organisational settings, specifically in personnel selection contexts. Thus, for research to generate new knowledge, it is imperative to test other theories like the personality type theory, which has not been tested much in personnel selection contexts (Leary et al., 2009). This justifies the inclusion of the personality types theory in this study.

Investigating the influence of cognitive intelligence, emotional intelligence and personality on job performance is likely to assist Zimbabwean organisations to circumvent challenges associated personnel selection practices as mentioned by Dumbu and Chadamoyo (2012), Nguwi (2011), and Zinyemba (2014). For example, since Zimbabwean organisations apply personnel selection methods haphazardly, as stated by Nguwi (2011), proposing a personnel selection model will assist such organisations in their selection practices. If job performance

is defined clearly, the true relationship between predictor variables and job performance is likely to be clearer for the purposes of advancing good personnel selection practices. The use of scientific and validated tools for personnel selection is likely to improve the person-job fit for the improvement of organisational performance. This section will not dwell on a discussion of the variables of cognitive intelligence, emotional intelligence, and personality because they will be discussed in more detail in Chapter 3 and 4.

From the literature reviewed so far, it is clear that job performance can be classified into task and contextual performance. According to Becton et al. (2017), task performance can be defined as in-role duties relating to the organisation's technical core. On the other hand, contextual performance or organisational citizenship behaviour refers to extra-role behaviours performed by employees in order to assist either the organisation or other employees in achieving organisational goals (Miao et al., 2017). To restate what has been discussed earlier, the job performance criteria can only be satisfied if employees engage in certain behaviours to accomplish tasks that contribute to the organisation's value. Thus, any other behaviour or the performance of any other tasks that do not contribute to the value of the organisation may not form part of the performance management criteria. In developing a personnel selection model, practitioners should be mindful of the full conceptualisation of job performance to ensure the fidelity of personnel measures in predicting job performance.

2.6 IMPLICATIONS OF JOB PERFORMANCE AND SELECTION MODELS FOR PERSONNEL SELECTION

Research conceptualises job performance as both unitary and multifactor (Campbell, 1990; Schmidt & Hunter, 2004; Viswesvaran et al., 2005). Those who advocate for the unitary perspective like Viswesvaran et al. (2005) argue from an empirical perspective that a common factor of performance seems to exist. The multifactor approach, on the other hand, takes the view that the criterion of job performance can be measured more accurately by more than one criterion. The concept of task and contextual performance and the resultant models of organisational citizenship behaviour provide the premise for the multifactor approach to job performance. Using a unitary measure of job performance is likely to result in research missing some aspects of the job performance criterion that may be important for job outcomes. For example, since OCB assists in job performance by facilitating performance on task directly by assisting the organisation or indirectly by assisting other individuals, removing it from the criterion equation is likely to lead to a spurious relationship between predictor variables and job performance.

The sociodemographic variables also have certain implications for the relationship between the predictor variables and job performance. For example, gender seems not to influence task performance. However, some research (Khalid et al., 2009) has shown there are female employees have higher levels of OCB than male employees. This may call for differential norming especially in countries like Zimbabwe Labour Act, which has strict equal opportunities legislation (Labour Act, Chapter 28:01, 2005). Research seems to suggest that there is no relationship between job type and job performance, with relationships only found in occupations with repetitive tasks (Schmidt & Hunter, 2004). However, research also suggests that people occupying technical jobs (low emotional labour) may have less OCB. This information is important to psychologists, as job types may negatively moderate the relationship between predictor variables and job performance for people occupying technical jobs where OCB is used as a criterion.

Age has also been found to be non-linearly related to job performance (Ng & Feldman, 2008). Thus, if the criterion for task performance is used, it may discriminate against people in some age groups when used in selection contexts. There is also empirical evidence suggesting that job experience is positively related to job performance (Schmidt & Hunter, 2004). However, the relationship has also been found to be non-linear. This has implications for, for example, supervisor ratings, especially when rating the performance of people of different job tenures. In turn, this is likely to confound the relationship between other predictor variables and job performance. The implications raised in this section, however, merely point to the need for caution when assessing job candidates where task performance and organisational citizenship behaviours are used as job performance criteria.

With regard to personnel selection, evidence suggests that Zimbabwe seems to lag behind in terms of the application of best practice personnel selection measures and models (Nguwi, 2011). Nguwi (2011) points out that most organisations use the selection interview as the primary tool for personnel selection even if research has shown its shortcomings. Thus, to have a comprehensive and scientific model for personnel selection, research should start considering investigating the influence of cognitive intelligence, emotional intelligence (ability and trait) and personality on job performance to provide a more scientific model for personnel selection.

2.7 EVALUATION AND SYNTHESIS

This section provides an evaluation and synthesis of the conceptualisation of job performance and personnel selection as they apply to the field of personnel psychology. The section also evaluates the two concepts as they relate to personnel selection practices in Zimbabwe.

2.7.1 Evaluation of variables and conclusions from the literature

The concept of job performance is perhaps one of the oldest concepts in the field of psychometrics and personnel selection. As a result, the meta-theoretical concept of job performance has received considerable research in trying to define the construct. The definition of job performance seems to be adequate because it seeks to determine only those behaviours that lead to positive and expected organisational outcomes. Defining job performance as results seems inappropriate since other factors in the environment can lead to good or bad performance even if the individual does not do anything. Job performance has also been conceptualised as both unitary and multifactor, with associated implications for job performance.

The conceptualisation of personnel selection was also discussed. The discussion included a comparison between personnel selection practices in the Zimbabwean organisational context and best practice. Accordingly, the following specific conclusions can be made:

- The conceptualisation of job performance as multifactor, and specifically in terms of task performance, OCBI and OCBO (Williams & Anderson, 1991), seems to capture the definition of performance.
- The unitary approach to the conceptualisation of job performance is likely to result in researchers and industrial psychologists missing the necessary information about the relationship between different predictor variables and the criterion of job performance, since the predictors may have different levels of correlations with the different job performance sub-criteria.
- There are some sociodemographic differences in the levels of predictor variables and some sociodemographic variables have interaction effects with predictor variables in predicting job performance. Industrial psychologists and organisations need to

consider these differences and interaction effects when assessing the relationship between predictors and job performance criteria in personnel selection contexts.

- A gap seems to exist in both the definition of job performance and the application of personnel selection practices between Zimbabwean organisations and best practice models. This calls for research in order to inform both practitioners and researchers on best practice.

Having discussed the conclusions drawn from the literature, the next section states the aim and sub-aims covered by the literature review thus far.

2.7.2 Review of the aims and sub-aims that have been covered

With regard to the literature review, the specific aims that have been partly covered are as follows:

Research aim 1: To investigate how the research literature conceptualises personnel selection and job performance in general and in contemporary African and Zimbabwean organisational contexts.

The following aims and sub-aims have been partly covered:

Sub-aim 2.5: To determine whether the sociodemographic variables influence an individual's level of cognitive intelligence, emotional intelligence (ability and trait), and personality and level of job performance

Research aim 3: To investigate the elements of the theoretical model proposed for personnel selection based on the links between cognitive intelligence, ability emotional intelligence, trait emotional intelligence, personality, and job performance and to determine the implications for personnel selection practices.

2.8 CHAPTER SUMMARY

The main focus of this chapter was to discuss the literature pertaining to the conceptualisation of job performance and the meta-theoretical concept of personnel selection. A definition of job performance, including the different approaches and theories of job performance, was provided. The models of job performance, namely, task performance and contextual

performance, were also discussed. The researcher also provided a proposed link between the variables of job performance and predictor variables, as well as the potential moderation of the sociodemographic variables on the relationships. The literature about the conceptualisation, methods, measures, and models of personnel were discussed. Job performance and personnel selection practices in the Zimbabwean organisational environment were also discussed together with an assessment of the gaps between Zimbabwean organisational practices and best practice. The chapter culminated in evaluating the literature reviewed in the chapter, clearly stating the conclusions as well as the aims and sub-aims that have been covered with regard to the literature review. The chapter laid the relevant meta-theoretical foundations for the study to pave way for discussion of the predictor variables (cognitive intelligence, emotional intelligence, and personality). The concepts of cognitive and emotional intelligence are discussed in the next chapter.

CHAPTER 3: COGNITIVE AND EMOTIONAL INTELLIGENCE

Chapter 3 addresses research aims 2.1, 2.2, and 2.3, and part of 2.5, and 3. It focuses on a discussion of the concepts of cognitive and emotional intelligence as well as their relationship with job performance. The chapter begins by discussing the conceptualisation of cognitive and emotional intelligence and how the same constructs will be defined and applied for the study. The sociodemographic variables influencing cognitive and emotional intelligence are also discussed. The models of cognitive and emotional intelligence are identified, with the researcher motivating for the choice of models adopted for the study. The chapter integrates the theory, including the models of cognitive and emotional intelligence as provided in the literature. The implications of the relationships between the applicable variables for personnel selection will also be outlined in the chapter. The chapter ends by evaluating and synthesising the literature provided, clearly stating the conclusions as well as the research aims and sub-aims that have been covered.

3.1 COGNITIVE INTELLIGENCE

The concept of cognitive intelligence will be discussed within the context of the cognitive-social learning paradigm (Mischel, 1999b). The origins of the concept of intelligence, as enshrined in the evolution of the cognitive intelligence theories, are discussed and explained. The section also explains how the concept of cognitive intelligence will be interpreted in this study regarding the adopted model. The relationship between cognitive intelligence, sociodemographic variables and job performance, as well as its relationship with emotional intelligence, will also be discussed in this section.

3.1.1 Conceptualisation of cognitive intelligence

The concept of intelligence has for a long time drawn attention and has become a topical issue in industrial and organisational psychology (Gregory, 2004; Joseph & Newman, 2010; O'Boyle et al., 2011). The history and origins of intelligence appear to be somewhat lengthy and convoluted, with each theorist proposing what they consider to be the best conceptualisation of intelligence (Gregory, 2004). Gregory (2004) notes that, since 1904 when psychologists started researching on intelligence, several definitions have been proposed. Sternberg and Kaufman (1998) thus conclude that the definition of intelligence does not only depend on whom one asks but also on the discipline, time, and place. In summary, Gregory (2004) notes that intelligence is about the ability to reason (acquiring knowledge and using it for future purposes), to learn and to adapt to one's environment. It is also the ability to think rationally

and to solve factual and novel problems and is regarded as a major determinant for the survival of species (Jensen, 1998; Lam & Kirby, 2002). Gottfredson (1998) points out that general intelligence can be measured through tests utilising verbal, spatial/pattern recognition, and mathematical problems.

Rindermann (2007) defines cognitive intelligence as the ability to think and solve complex problems of a cognitive nature without relying on knowledge or recall. It appears that the arguments about cognitive intelligence point to the view that the definition is complex and depends on people and times (Gottfredson, 1997). Earlier, Gottfredson (1997) conceptualised intelligence as a general capability involving planning, reasoning and solving problems, thinking in abstract terms, comprehending ideas of a complex nature, and quickly learning from experience.

While Gottfredson (1997) and Rindermann (2007) seem to have perhaps captured what cognitive intelligence may be, the major questions among researchers and early theorists has been whether cognitive intelligence should be viewed as a single, unitary construct or whether it consists of different and specific abilities (Willis, Dumont, & Kaufman, 2011). As part of efforts to answer this question, the next section outlines the development of intelligence theory and ends by providing a conceptualisation of intelligence as interpreted and used in this study.

3.1.2 Cognitive intelligence: theoretical models

This section provides the definition of cognitive intelligence, outlining its origins by tracing the development of the cognitive intelligence theory. The link between cognitive and emotional intelligence and job performance is discussed. The section culminates in providing the conceptualisation of cognitive intelligence as it will be interpreted in this study.

3.1.2.1 Early theories of intelligence

The first theory of cognitive intelligence or general mental ability was proposed by Galton (in 1883), who argued that intelligence is underwritten by keen sensory abilities (Mackintosh, 2011). According to Gregory (2004), Galton argued that intelligence is the degree of keenness of sensory discrimination. Horn and McArdle (2007) argue that, although Galton tried to support his theory by experimentally measuring sensory keenness in terms of reaction and movement time, he found near to zero correlations between the variables he investigated. A more scientific method for conceptualising the concept of cognitive intelligence was therefore required, and this was provided by Spearman (1904, 1923).

3.1.2.2 Spearman's *g* and *s*

Spearman (1904, 1923, 1927a) proposed that intelligence consists of two factors, namely, general factor (*g*) and specific factors (*s*). As a result, Spearman used the concept of factor analysis to support his research on intelligence. Spearman demonstrated that an individual's performance on a variety of cognitive intelligence test or subtests of intellectual effectiveness was determined by the general factor (*g*) and another factor (*s*) specific to the test or subtests (Willis et al., 2011). For Spearman, Willis et al. (2011) argue, the specific factor (*s*) was not the same for each test or subtests, which means that an individual relies on the more pervasive *g*, and this predicts performance on a variety of tasks (Floyd, McGrew, Barry, Raphael, & Rodgers, 2009). In Spearman's terms, the *s* factors will support the *g* by providing a common supply of mental energy if it is demanded (Gregory, 2004).

For Spearman, individual differences in *g* are reflected in one's ability to use three principles of cognition, that is, apprehension of experience, education of relations and education of correlations (Adey, Csapo, Demetriou, Hautamaki, & Shayer, 2007). Apprehension of experience pertains to the use of experience in solving problems. Education of relations refers to the direct relationship between objects or concepts and education of correlations involves figuring out relations between relationships (Adey et al., 2007). In Spearman's terms, education of relations and correlation would entail using past experience in finding logic to problem-solving (Gregory, 2004). If Spearman's conceptualisation of cognitive intelligence is correct, then psychologists should spend more time researching the *g* factor because it appears to be pervasive in predicting job performance.

When applied to job performance, research suggests that the *g* accounts for approximately 25% to 50% of cognitive intelligence tests (Floyd et al., 2009). Research also shows that *g* or general mental ability is a strong predictor of job performance (Schmidt, 2002). Despite ubiquitous evidence suggesting that the *g* accounts for the most variance in job performance, some challenges have been put forward. For example, some theorists have proposed that domains of cognitive ability might be independent of one another and these include Thurstone's primary mental abilities (PMA) and Gardner's multiple intelligences (Gottfredson, 1997). The next section discusses Thurstone's conceptualisation of cognitive intelligence.

3.1.2.3 Thurstone and the primary mental abilities

Using factor analysis, Thurstone (1931) identified correlation matrices for the existence of a group of factors. He concluded that the *g* could not explain his empirical results. Instead,

Thurstone (1938) proposed that a group of factors which he called primary mental abilities (PMAs) could explain those results. He argued that intelligence could be explained by seven PMAs which have been corroborated by research. He identified these abilities as word fluency, space, number, verbal comprehension, perceptual speed, associative memory, and inductive reasoning (Gregory, 2004). Later, Thurstone acknowledged the presence of a common *g* factor because his PMAs seemed to correlate moderately with each other, suggesting that a second order factor exists (Davison & Kemp, 2011). It is therefore interesting to note that there may be a very thin divide between the models proposed by Thurstone and Spearman. This suggests that both Spearman and Thurstone were in general agreement with regard to the basic tenets of their theories. One would argue that the debate between the *s* and the *g* becomes an issue of emphasis and perhaps depends on the purpose of the assessment at hand at a particular time and within a specific environment (Davison & Kemp, 2011).

3.1.2.4 Vernon's *g*, *V:ed*, and *k:m*.

Having discovered the similarities between the conceptualisation of cognitive intelligence by Thurstone and Spearman, Vernon (1950) came up with the hierarchical group factor theory to bridge the theories proposed by Spearman and Thurstone. According to Vernon (1950), the *g* factor exists at the top of the hierarchy, followed by two major group factors which he labelled verbal-education (*V:ed*), and practical-mechanical-verbal-spatial-physical (*k:m*). Situated below the aforementioned two factors are minor group factors and several other specific factors similar to Spearman's *s* and Thurstone's PMAs. Thus, neither Thurstone or Vernon show a departure from Spearman, indicating the pervasiveness of the *g* in their conceptualisation of cognitive intelligence.

3.1.2.5 Guilford and the structure of intellect

Guilford (1967) believed that mental abilities were more than the seven primary mental abilities described by Thurstone. He proposed the Structure of Intellect (SOI) to summarise his conceptualisation of intelligence. Consequently, he classified intelligence into three dimensions, namely, products, operations, and contents. Operations defines the nature of operations that the person taking a cognitive intelligence test should utilise to perform well on a test. These include the use of cognition, memory, evaluation, and divergent and convergent production. Contents are the materials or stimuli presented to the examinee. Guilford (1967) identified five of these, including visual, auditory, symbolic, semantic, and behavioural. The third dimension, products, refers to mental structures produced by the brain to arrive at a correct answer. The six products identified by Guilford include unit, class, relation, system,

transformation and implication. Guilford (1967) additionally identified five types of operations, five types of contents and six types of products, which represents a total of 150 ($5 \times 5 \times 6$) factors of intellect. This is because each combination of one operation, one content and one product will represent a different factor of intelligence.

Guilford (1967) can be credited for bringing out the complexity of cognitive intelligence. However, if one considers other contents such as tactile and olfactory, as well as other operations like creative thinking, the conceptualisation and level of analysis of intelligence becomes atomistic and cumbersome. In addition, Guilford (1967) only elaborated on the way in which the general and specific factors of cognitive intelligence are organised. An analysis of his model suggests that Guilford (1967) presents little variance in the conceptualisation of cognitive intelligence from Spearman, Thurstone and Vernon. Despite these seeming similarities in Spearman's, Thurstone's, Vernon's and Guilford's conceptualisations, Cattell (1941, 1971) provides another way for the conceptualisation of cognitive intelligence.

3.1.2.6 Cattell and fluid and crystallised intelligence

Raymond Cattell conceptualises cognitive intelligence or general mental ability in terms of two major factors, which he labelled fluid intelligence (Gf) and crystallised intelligence (Gc) (Cattell, 1941, 1971). Fluid intelligence is the ability to solve problems without the use of experience or prior learning. (Cattell, 1971). Thus, fluid intelligence is measured by culture-free tests which include abstract reasoning tests or verbal tests that utilise highly familiar words (Rindermann, Flores-Mendoza, & Mansur-Alves, 2010). As a result, it is used mainly for adapting to new situations. For Cattell, crystallised intelligence is culture-specific and represents intelligence or knowledge gained by experience and which can be used in specific situations (Davison & Kemp, 2011). According to Rindermann et al. (2010), problems that are solved making use of scholastic types of knowledge and skills like reading or arithmetic fall within the domain of crystallised intelligence. Therefore, Gc is measured by tests having a significant cultural content.

A closer look at Cattell's conceptualisation of cognitive intelligence appears to indicate only a slight departure from Spearman. For example, fluid intelligence may be equated to two of Spearman's principles of cognition (education of relations and education of correlations). Similarly, crystallised intelligence can be equated to Spearman's other principle of cognition, apprehension of experience. One would argue that Cattell's may be an extension or elaboration of Spearman's conceptualisation of cognitive intelligence by explaining the constituencies of the *g* and the *s*.

3.1.2.7 Biological bases of intelligence of Hebb and Luria

Hebb (1949) attempts to provide some biological bases of intelligence. He identified two types of intelligence and labelled them Intelligence A and Intelligence B. According to Hebb (1949), one manifestation of Intelligence A is innate potential. Intelligence B is related to the growth and development of brain functioning. Accordingly, Hebb (1949) suggests that learning occurs neuro-psychologically through cell assemblies. Hebb (1949) proposes that learning is positively related to the degree of connections among neurons, with more complex connections leading to faster learning. Luria (1973) attempts to provide the biological bases of intelligence in terms of the brain areas responsible for intelligent behaviour. Accordingly, for Luria (1973) intelligence is exhibited by the effective functioning of the midbrain and brain stem, occipital, parietal and temporal lobes and the frontal cortex, which act as arousal, sensory, and planning and organisation units, respectively. Recent biological theories of intelligence have focused on specific brain and nerve functioning (Vernon & Mori, 1992).

Vernon and Mori (1992) found a significant correlation between the conduction velocity of nerves and intelligence quotient (IQ) to be as high as 0.4, suggesting that nerve-conduction velocity may predict performance (Gregory, 2004). Commenting on the biological theories of intelligence, Davison and Kemp (2011) argue that the theory provides a parsimonious, uncomplicated view of intelligence as a biological phenomenon, but suffered replication failure. In addition, one would argue that although physiological theories provide the biological bases of intelligence, they seem simply to explain the processes behind intelligence behaviour.

3.1.2.8 Theory of simultaneous and successive processing

The theory of simultaneous and successive processing was proposed by a Russian psychologist Aleksandr Luria (Gregory, 2004). Luria (1966) arrived at a general theory of cognitive processing through reliance on observations of brain-injured soldiers. For Luria, superior cognitive intelligence is defined partly by the speed with which an individual can engage in the simultaneous execution of several different mental operations and partly by the speed and accuracy with which an individual can follow a certain sequence (successive processing) in arriving at solutions (Gregory, 2004). Gregory (2004) gives an example and notes that simultaneous information processing may include drawing, which requires not only the ability to apprehend the overall shape, but also requires one to guide the fingers, as well as drawing individual lines of specific lengths and specific orientation. This theory appears to

provide what happens in an individual's cognition which assists them to exhibit either the *s* or the *g*. Like Cattell's conceptualisation, it seems to complement that of Spearman, Thurstone and Vernon in explaining the operations taken to exhibit either the *g* or *s*.

3.1.2.9 Information processing theories of intelligence

The information processing theory of intelligence was coined by Campione and Brown (1978) and can be presented as an analogy to the functioning of a computer. Like a computer, intelligent behaviour can be measured by memory span and information encoding and decoding speed. The capacity of short-term memory and long-term memory, including the durability or rate of information loss/decay and the speed of information retrieval or memory search, determines whether an individual is intelligent or not (Campione & Brown, 1978). Once information is stored in the long-term memory, it is considered semi-permanent and resistant to environmental changes. This means that information can be recalled from the cognitive system when needed to assist the individual to solve problems of different kinds.

The information processing theoretical approach to the study of cognitive intelligence can be credited for bringing about the mental operations taken by individuals when they exhibit intelligent behaviour. This discovery is complementary to the works of the likes of Spearman, Thurstone, Guilford and Cattell, who sought to shed light on the nature of intelligence, including ways in which to measure such information processing. In addition, the information processing theory does not specify the nature of intelligence, for example whether intelligence is unitary or consists on specific abilities. As seen in Carroll's (1993) conceptualisation, which will be discussed next, the two approaches seem complementary because they guide the study of the nature of intelligence and the development of intelligence tests.

3.1.2.10 Carroll and the three-stratum model of intelligence

Carroll (1993) proposed a hierarchical (three-stratum) model of intelligence. Stratum I (narrow abilities) includes many narrow, specific abilities such as reading comprehension, lexical knowledge, and verbal ability. Stratum II (broad abilities) includes various group-factor abilities like fluid and crystallised intelligence, as well as other abilities like cognitive speed, information processing speed and speed of retrieval. For Carroll (1983), Stratum III represents general intelligence, which can be equated to Spearman's (1904) general intelligence factor. Carroll (1983) does not break new ground but merely uses prior theoretical concepts of intelligence to build a model. Of importance to note is that cognitive intelligence occurs at different levels and it depends on the level of analysis required at a specific occupational level for one to

choose a relevant cognitive intelligence test or tests for assessment. Carroll's theory appears to complement those of Spearman, Thurstone, Cattell and Guilford. The only difference is that Carroll's theory seems more granular than the others. As seen in the following sections, Sternberg (1985, 1996) and Gardner (1983, 1993) provide a seemingly radical departure from the hitherto discussed theories of intelligence by providing a somewhat different conceptualisation of intelligence.

3.1.2.11 Sternberg and the triarchic theory of intelligence

Sternberg (1985) points out that certain mental functions were paramount to the exhibition of intelligence. He argues that intelligence is a product of the interaction between creative, analytical and practical abilities within a certain given environment. Fitting well into the social cognitive learning paradigm, the triarchic theory conceptualises intelligence in terms of three abilities. These are the abilities to select, shape and adapt to the environment to achieve both and societal and cultural objectives (Sternberg & Kaufman, 1998). Sternberg's triarchic theory involves the conceptualisation of intelligence at three levels, namely, componential intelligence, experiential intelligence, and contextual intelligence (Davison & Kemp, 2011).

Componential intelligence can be characterised at three levels, that is, meta-components or executive processes, components pertaining to performance, and acquisition of knowledge. Meta-components consist of the executive processes responsible for directing other components of intelligence. For example, they are responsible for determining the nature of the intellectual problem and provide a solution for the same. Thus, people who can appropriately allocate their mental resources are strong at the meta-componential aspects of intelligence and perform higher on cognitive tasks. Performance components are the well-established mental processes responsible for performance and solving problems. They include the use of short-term memory and syllogistic reasoning. Knowledge acquisition refers to the degree and speed of learning or acquiring new knowledge. In this regard, the major determinant of individual differences concerning performance on cognitive tasks is the capacity and speed of knowledge acquisition (Sternberg & Kaufman, 1998).

Experiential intelligence determines the degree to which an individual can effectively deal with new tasks. As a result, Sternberg (1996) attacks traditional tests of cognitive intelligence because they seek to test what the person already knows. He argues that intelligence should be measured by how an individual can use acquired knowledge to solve relatively complex novel tasks. Sternberg (1996) also points out the ability to automatise as the other aspect of experiential intelligence. Here, tasks that are done routinely become engrained in the

individual such that it becomes relatively automatic to perform them. Reading and playing musical instruments are examples of this automation.

According to Sternberg (1986), contextual intelligence refers to the mental activity that involves selecting, shaping and adapting to environments that are relevant to one's life. Adaptation involves the development of skills in order to meet the demands of a particular environment. Sternberg (1986) acknowledges that adaptation may be different for different cultures. Thus, the ability to choose the environment in which one can reach one's fullest potential constitutes intelligence behaviour according to Sternberg (1986).

Shaping involves carving a fit between oneself and the environment, especially if it is impossible to leave that environment. Thus, an employee who changes his job content by enriching it or removing some of the nuisance tasks to achieve full performance would have shaped his/her environment and is deemed to be intelligent according to Sternberg (1996). It is interesting to note that triarchic theory fits well into the social-cognitive learning paradigm.

3.1.2.12 Gardner's theory of multiple intelligences

Gardner's (1983, 1993) theory of multiple intelligences is based on his analysis of the relationship between the brain and behaviour. He proposed seven natural intelligences. These include spatial, linguistic, logical-mathematical, bodily-kinaesthetic, musical, personal, and intrapersonal. Bodily-kinaesthetic includes skills used by artists, athletes, hunters and the like. According to Gardner (1983, 1993) musical intelligence is the ability to compose music and play musical instruments. The ability to recognise and manipulate patterns and space is spatial intelligence. Linguistic and logical-mathematical intelligence is the ability to reason with words and numbers, respectively. According to Gardner (1983), interpersonal intelligence is the ability to understand and distinguish among the moods, intentions, motivations and desires of others and to work effectively with them. Intrapersonal intelligence is the ability to understand one's own feelings and to regulate one's life. A closer analysis of personal intelligence appears to indicate that it has been popularised within the concept of emotional intelligence, as conceptualised by Salovey and Mayer (1990).

Later, Gardner (1999) came up with naturalistic intelligence, spiritual intelligence and existential intelligence. It seems that at the beginning of the last century, when the concept of intelligence was first investigated, researchers defined intelligence as the capacity to deal with the environment in general (Sternberg, 1986). However, at the turn of the last century, it became apparent that there were multiple intelligences, which work in sympathy to assist an

individual to adapt to their environment. Although Thorndike (1920) appears to have identified the concept called social intelligence, it was only in 1990 that Mayer and Salovey popularised the conceptualisation of emotional intelligence (Salovey & Mayer, 1990), which fits well in Gardner's (1993) personal intelligences. This brings the need to split cognitive and emotional intelligence, as they appear to be distinct from each other.

Furnham (2009) advises that those who insist on the term "multiple intelligences" should put the term in inverted commas to denote that measuring multiple intelligences is different to the measurement of cognitive intelligence in a conventional manner. Furnham (2009) further notes that some of Gardner's multiple intelligences should be seen as specific aptitudes or broad abilities, or even preferences, rather than what might be seen as accurate measures of Carroll's (1993) Stratum II intelligence factors described earlier. Nevertheless, it is interesting to note that Gardner's theory of multiple intelligences seems to dovetail with Spearman's *g* and *s*. Notwithstanding the word of caution by Furnham (2009), Gardner (1993) can be credited for bringing the split between cognitive and emotional intelligence. The concept of emotional intelligence was later developed fully in the 1990s and beyond (e.g. Bar-On, 1988; Goleman, 1995; Mayer et al., 2002; Schutte et al., 1998).

3.1.2.13 Integration of theoretical models and motivation for the adopted model

As has already been mentioned, the theoretical foundations of the conceptualisation of cognitive intelligence as a general mental ability are to be found in Spearman's (1904) early works on the nature of intelligence. Since then, there has been widespread debate within the domain and study of intelligence on whether cognitive intelligence should be viewed as unitary and as constituting separate and distinct abilities (Gregory, 2004). Spearman's (1904) conceptualisation of cognitive intelligence seems to capture the answer to the conceptualisation of cognitive intelligence, which is widely used in the development of cognitive tests today (Willis et al., 2011). The conceptualisation of cognitive intelligence as a unitary entity stems from the idea that each person has a certain level of cognitive ability, often referred as the *g* in Spearman's terms (Jensen, 1998; Spearman, 1904).

Although this general mental ability may vary or respond to the effects of education and experience, proponents of the *g* conceptualisation of cognitive intelligence argue that each person has this unitary intelligence that is consistent across most tests of cognitive intelligence (Davison & Kemp, 2011). Proponents of the conceptualisation of cognitive intelligence as general mental ability also posit that the unitary cognitive intelligence that people possess may be utilised in most efforts to solve problems although it may be expressed differently under

different circumstances (Willis et al., 2011). Having analysed performance on different cognitive intelligence tests, Spearman (1904) concluded that the correlation between different tests of cognitive intelligence is reminiscent of a pooled factor, the general mental ability that explains variance in job performance across most jobs.

When applied to individual differences, Willis et al. (2011) point out that people may refer to others as smart or dumb because of this single and unitary nature of cognitive reasoning. Accordingly, proponents of the general mental ability model defined cognitive intelligence as the capacity to think in abstract terms and the ability to learn and adapt to the environment (Sternberg & Detterman, 1986). Even though theorists like Thurstone (1938, 1941), Vernon (1950) and others tried to depict cognitive intelligence as consisting of separate abilities, they found a common variance in job performance that could be explained by an amalgamation of separate abilities. This supports the fidelity of general mental ability as the most pervasive predictor of job performance across most occupations (Bertua et al., 2005; Carson & Lowman, 2002; Deary et al., 2007; Joseph & Newman, 2010; O'Connell et al., 2007; Salgado et al., 2003; Schmidt & Hunter, 2004).

Gottfredson (2004) asserts that general mental ability consists of a variety of cognitive abilities, which include verbal, mathematical and abstract spatial abilities that reflect a single, holistic cognitive intelligence construct. This is also consistent with the assertion by Carson and Lowman (2002) that general mental ability is measured by tests consisting of verbal, numerical and abstract reasoning problems. From a predictive point of view, general mental ability has been found to influence some life outcomes, including academic success, job performance, and occupational success (Judge, Ilies, & Dimotakis, 2010). Even an earlier meta-analysis by Schmidt and Hunter (1998) demonstrates that general mental ability is one of the strongest correlates of job performance.

According to Gottfredson (1997), people with high general mental ability are also likely to have a better ability to engage in positive interpersonal interactions, pointing perhaps to the link between cognitive and emotional intelligence. The predictive power of general mental ability has been tested by numerous studies with results pointing in the same direction, namely, that general mental ability is the single best predictor of job performance (Tews, Stafford, & Tracey, 2011).

With regard to the interpretation of cognitive intelligence for the purposes of this study, and in line with literature reviewed, general mental ability as depicted in Spearman's *g* seems to be present in most of the theories of intelligence. In addition, it has been demonstrated that tests

of cognitive intelligence share a common variance, which may be conceptualised as the general factor (Floyd et al., 2009; Joseph & Newman, 2010; Willis et al., 2011). In addition, there is a large body of evidence suggesting that general mental ability is the single best predictor of job performance in most if not all jobs (Joseph & Newman, 2010, O'Boyle et al., 2011). For this reason, cognitive intelligence will be used and interpreted as a unitary concept represented as general mental ability in this study. Cognitive intelligence was therefore measured using the General Ability Measure for Adults (GAMA) (Naglieri & Bardos, 1997). The test uses abstract designs to measure cognitive intelligence (Naglieri & Bardos, 1997).

With regard to the relationship with other variables influencing job performance, general mental ability has been discovered to be highly positively correlated to ability emotional intelligence using the MSCEIT (Cote & Miners, 2006; Joseph & Newman, 2010). When compared with the five-factor model of personality, general mental ability has also been found to be positively correlated with conscientiousness (O'Boyle et al., 2011). Meta-analysis has shown no significant relationship between general mental ability and both trait and mixed models of emotional intelligence, indicating that they seem to be different constructs, or they tap from different mental resources (O'Boyle et al., 2011).

3.1.3 Evaluation and synthesis: theoretical models of cognitive intelligence

In summary, different theories discussed hitherto provide somewhat different conceptualisations of cognitive intelligence, but all are essentially derived from the same idea. Spearman (1904) seems to have broken the ground in the study of cognitive intelligence through the development of factor analytic or psychometric theories of cognitive intelligence. His successors (in terms of intelligence theory development), who include Thurstone (1938, 1941) Vernon (1950), Guilford (1967), Cattell (1941, 1971), and Carroll (1983), seem to support either Spearman's *s* or *g*, or the tenets of his theory. The biological or physiological theories of intelligence outlined by Hebb (1949) and Luria (1966), as well as the information processing theory of Campione and Brown (1978), seem to provide an explanation for what happens when one shows intelligent behaviour. Specifically, biological theories seem to give a parsimonious conceptualisation of cognitive intelligence but have suffered from replication issues (Davison & Kemp, 2011). Sternberg's (1985b, 1986, 1996) and Gardner's (1993) conceptualisations of cognitive intelligence brought the notion that cognitive intelligence may not consist of cognitive components only, but that there could be other forms of intelligence. In fact, the concept of social intelligence that Thorndike (1920) proposed is seen in Gardner's (1983) concept of intrapersonal and interpersonal intelligence. These personal intelligences

gave birth to concept of emotional intelligence, a construct that has survived the test of theory and is discussed in the next section.

3.2 EMOTIONAL INTELLIGENCE

This section provides a definition of emotional intelligence and traces its origins by tracing the development of emotional intelligence theory. The link between emotional intelligence and cognitive intelligence, as well its relationship with job performance, are also discussed. The concept of personality is also discussed, albeit at a high level since it will be comprehensively discussed in Chapter 4. The section ends by discussing the models of emotional intelligence and providing the conceptualisation of emotional intelligence as it was interpreted and adopted for this study.

3.2.1 Conceptualisation of emotional intelligence

The concept of emotional intelligence has attracted attention over the last 20 years (Gooty et al., 2014; Joseph & Newman, 2010; O'Boyle et al., 2011; Wu, 2011) in the literature. The prominence of emotional intelligence theory has also partly been raised (in meta-analytic studies) by the assertion that cognitive intelligence only may not be able to explain all life and occupational outcomes (Joseph & Newman, 2010; O'Boyle et al., 2011). Hence, emotional intelligence theory has been developed mainly to explain the importance of some non-cognitive components to several outcomes including job performance (Murphy & Janeke, 2010). According to Murphy and Janeke (2010), emotional intelligence can be conceptualised as a trait or skill that assists individuals to successfully adjust and adapt to their environments in a manner that allows them to interpret, manage and use theirs and others' emotions to solve problems.

An earlier definition of emotional intelligence by Van Rooy and Viswesvaran (2004) seems to capture the multifaceted nature of emotional intelligence. In their meta-analysis, Van Rooy and Viswesvaran (2004) define emotional intelligence as the competence to recognise, generate, understand, express and evaluate self and others' emotions. This assists in guiding the thinking and coping with demands and pressures from the environment. This definition seems to indicate that like cognitive intelligence, there is no agreement among researchers on the conceptualisation of emotional intelligence. From Van Rooy and Viswesvaran's (2004) definition, it is apparent that some researchers conceptualise emotional intelligence in terms of the ability to process emotional information cognitively (Mayer, Salovey, & Caruso, 2000), while some consider it to be a dispositional trait similar to personality (Schutte et al., 2009).

There is also a third group of researchers who conceptualise emotional intelligence as a mixture of personality-related dispositions and traits (Bar-On, 1997; Goleman, 1995).

Despite the varied definitions or conceptualisations, it is critical to note that conceptualised simply, emotional intelligence involves skills in both the affective domain and the cognitive domain (Goleman, 2001). Even if there are differing conceptualisations of emotional intelligence, Goleman (2001) point out that emotional intelligence at a general level can be conceptualised as the ability to recognise and regulate emotions in ourselves and in others. The next section traces the origins and history of emotional intelligence.

3.2.2 Historical origins and theories of emotional intelligence

As mentioned earlier, Thorndike (1920) first identified the concept of emotional intelligence, which he termed social intelligence. Thorndike (1920) conceptualised social intelligence as the ability to act wisely in human relations and stated that this ability is an antecedent of social and occupational outcomes. Thus, Thorndike (1920) acknowledged that since social intelligence manifests in social interactions, real testing of social intelligence requires real world and genuine situations for one to accurately measure the construct.

In 1937, Thorndike and Stern (1937) attempted to measure social intelligence in terms of societal outcomes and issues including social values and economics based on knowledge about contemporary issues, as well as individuals' social adjustment. Thorndike and Stern (1937) abandoned their research and only in 1983 did Garner (1983) introduce a theory of multiple intelligences, which included interpersonal and intrapersonal intelligences. These intelligences are thematically related to emotional intelligence. This conceptualisation of emotional intelligence seems to be consistent with Goleman's (1995) definition of emotional intelligence as the ability to recognise and regulate emotions in the self and others.

It is interesting to note that even though Gardner (1983) published his theory of multiple intelligences, which seemed to touch on the emotional intelligence space, the concept of emotional intelligence had almost been forgotten since Thorndike's times. As Ashkanasy and Daus (2005) note, the concept of emotional intelligence had not been popularised since Thorndike's times, although research intensified in the late 1980s to 1990s, with the term emotional intelligence occasionally appearing in the literature in the years following the 1960s. Ashkanasy and Daus (2005) contend that Payne (1986) was perhaps the first to refer to the concept of emotional intelligence in his doctoral dissertation. Payne did not, however, add

much to emotional intelligence theory development because he did not publicise the theory (Ashkanasy & Daus, 2005).

Three years after Garner's work was published, Reuven Bar-On (Bar-On, 1988) developed perhaps the first attempt to assess emotional intelligence by identifying the concept he called emotional quotient in his PhD thesis. According to Goleman (2001), Bar-On's (1988) conceptualisation of emotional intelligence can be placed within the context of personality space, particularly within a model of psychological well-being. In 1997, Bar-On consolidated his work and explained his conceptualisation of emotional intelligence in terms of the five primary domains underpinning his model (Bar-On, 1997). These include interpersonal skills, intrapersonal skills, stress management, general mood, and adaptability. Bar-On (2000a) later refined his model and defined emotional intelligence as the utilisation of social and emotional abilities to cope with the demands posed by the environment.

Ashkanasy and Daus (2005) point out that Bar-On (1988) seemed to have sensed that he could make money by developing a measure of emotional intelligence and rushed to publish the concept of emotional quotient. It was, however, Mayer and Salovey (1990) who first published work on emotional intelligence theory. Accordingly, they defined emotional intelligence as the ability to perceive own and others' emotions, to discriminate among those emotions and to utilise emotional information to guide one's thinking and action (Mayer & Salovey, 1990). It is interesting to note that Mayer and Salovey's (1990) conceptualisation of emotional intelligence was not cognitive in focus. Having seen the criticism that emotional intelligence might not have been real intelligence, Mayer and Salovey decided to make their model cognitive in focus (O'Boyle et al., 2011). This would distinguish ability emotional intelligence from social traits (Cote & Miners, 2006; Joseph & Newman, 2010; O'Boyle et al., 2011). Accordingly, Mayer and Salovey (1997) argued that emotional intelligence should only measure perception and regulation of feelings but should focus on thinking about feeling.

Since 1990, when Mayer and Salovey (1990) popularised the theory of emotional intelligence, different models of emotional intelligence have proliferated, specifically focusing on the three streams of ability, trait and mixed models of emotional intelligence (Ashkanasy & Daus, 2005). Ashkanasy and Daus (2005) point out that there are three streams of emotional intelligence. According to Ashkanasy and Daus (2005), the first stream is based on the four-branch model of emotional intelligence proposed by Mayer and Salovey (1997). This conceptualisation of emotional intelligence as ability is now measured using, among other instruments, the Mayer, Salovey and Caruso Emotional Intelligence Test (MSCEIT) (Ashkanasy & Daus, 2005) and Wong's Emotional Intelligence Scale (WEIS) (Wong et al., 2004). The second stream of

emotional intelligence comprises self-report and peer-report measures which are based on Mayer and Salovey's original conceptualisation of emotional intelligence and these include measures proposed by, for example, Schutte et al. (1998) and Wong and Law (2002). According to Ashkanasy and Daus (2005), the third stream comprises what they call expanded models of emotional intelligence represented by instruments like the EQ-i (Bar-On, 1997). This third stream of emotional intelligence is the mixed model because it encompasses measures of traditional social skill measures as well as measures of emotional intelligence (Ashkanasy & Daus, 2005). The mixed model of emotional intelligence has been criticised because it includes trait measures as well as ability (Ashkanasy & Daus, 2005). Cherniss, Extein, Goleman, and Weissberg (2006) point out that there is an overlap between models of emotional intelligence. Nevertheless, there is general agreement that it involves two broad components, namely, awareness and management of one's own emotions and awareness and management of others' emotions (Cherniss et al., 2006). Before discussing individual models of emotional intelligence and their predictive power with regard to job performance, it is essential to discuss the influence of emotional intelligence in general on job performance.

With regard to the relationship between emotional intelligence and other predictor variables with job performance, O'Boyle et al. (2011) point out that there are few empirical studies investigating the influence of cognitive intelligence, emotional intelligence (ability and trait) and personality on job performance. As a result, some researchers have focused on meta-analysis (e.g. Joseph & Newman, 2010; O'Boyle et al., 2011). In their meta-analysis, Joseph and Newman (2010) investigated the influence of cognitive intelligence, emotional intelligence and personality on job performance. They included all three streams of emotional intelligence, that is, trait, ability and mixed model conceptualisations of emotional intelligence. They found that all three streams demonstrated significant incremental validity in predicting job performance over and above cognitive ability and the Big Five personality traits. Of interest to note is a discovery by Joseph and Newman (2010) that trait emotional intelligence measures have incremental validity over and above the Big Five personality traits and cognitive ability.

Concerning to the relationship between emotional intelligence and personality types as measured by the Myers Briggs Type Indicator (MBTI), Higgs (2001) found a significant positive relationship between the MBTI (intuition) and trait emotional intelligence. Perry and Ball (2005) found a significant relationship between intrapersonal and interpersonal intelligence with personality as measured by the MBTI. Results from a study by Leary et al. (2009) support the relationship between the MBTI's extroversion and the components of emotional intelligence. In the same study, a significantly positive relationship between a preference for using feeling in decision-making and emotional intelligence was also found (Leary et al., 2009). Joseph and

Newman (2010) discovered that ability-based measures of emotional intelligence are redundant with cognitive ability, mainly because they seem to tap from the same resources with regard to job performance. In confirming this, Gooty et al. (2014) argue that ability emotional intelligence and cognitive intelligence are expected to be redundant with each other because they fall within the same nomological domain. It is also interesting to note that like O'Boyle et al. (2011), Gooty et al. (2014) found that all three streams of emotional intelligence have incremental validity for jobs that demand high emotional labour. Emotional labour occurs when an employee has to change his/her emotional expression to meet the demands of the other person or the organisation they work for (Diefendorff, Croyle, & Gosserand, 2005; Lee, Ok, & Hwang, 2016; Pavitra & Anju, 2016). This seems to indicate that job type may moderate the relationship between emotional intelligence and job performance.

Joseph and Newman's (2010) assertions seem to be supported by a later meta-analysis by O'Boyle et al. (2011). O'Boyle et al. (2011) suggest that some studies have shown the incremental predictive validity of emotional intelligence over and above general cognitive ability. Although O'Boyle et al.'s (2011) meta-analysis included 65% more studies compared to Joseph and Newman's (2010), they seem to arrive at the same conclusion, namely, that all three types of measures of emotional intelligence predict job performance at significant levels. O'Boyle et al. (2011) argue that all three models of emotional intelligence measure at least part of the core concepts behind emotional intelligence and, as such, it is likely that the ability to recognise emotions in one's self and in others, as well as the ability to regulate one's own emotions, contributes to effective social interaction and eventually to job performance through group tasks. In particular, O'Boyle et al. (2011) note that the relationship between mixed model measures and job performance has been found to be better than trait measures but lower than ability measures. A finding noted by O'Boyle et al.'s (2011) meta-analysis, which seems not to be evident in Joseph and Newman's (2010) study is that emotional intelligence may predict performance on tasks or projects involving teamwork and also leadership, while measures of cognitive ability predicts performance on individual cognitive tasks.

O'Boyle et al. (2011) found that the overall relationship between emotional intelligence and job performance is significantly positive at ($r = 0.28$, $p < 0.001$). In their meta-analysis, 47% variance was attributable to sampling, which they argue is quite a notable increase from a prior meta-analysis done by Van Rooy and Viswesvaran (2004), whose variance error was 27%. O'Boyle et al. (2011) have reservations about the observed error variance, noting that the percentage still falls short of the traditional criterion of 75% recommended by Hunter and Schmidt (2004), indicating the presence of potential moderators. One would, therefore, argue that these results show the disadvantages of meta-analytic studies because they lack

empirical rigour. This is why it is important for empirical studies done within selection contexts to focus not only on the influence of variables like cognitive intelligence, emotional intelligence and personality on job performance, but also to investigate the influence of potential moderators in such a relationship. With regard to the relationship between emotional intelligence and personality, O'Boyle et al. (2011) found the three emotional intelligence streams to be positively related to agreeableness, extroversion, conscientiousness, openness and cognitive ability, and negatively related to neuroticism. Research shows that ability emotional intelligence is positively related to cognitive intelligence but not to trait and mixed model emotional intelligence (Cote & Miners, 2006; Joseph & Newman, 2010). By the same token, ability emotional intelligence has been found to be generally redundant with cognitive intelligence, with the other two streams of emotional intelligence adding better incremental validity in predicting job performance over and above personality and cognitive intelligence (O'Boyle et al., 2011).

In summary, since 1920, when Thorndike (1920) discovered the concept he called social intelligence, up to the full popularisation of the concept by Mayer and Salovey (1990, 1997), three streams of emotional intelligence appear to have emerged. As Ashkanasy and Daus (2005) note, these streams include the conceptualisation of emotional intelligence as ability (Mayer & Salovey, 1997; Wong et al., 2004), trait (Schutte et al., 1998; Schutte et al., 2009; Wong & Law, 2002) or a mixture of traits and abilities (Bar-On, 1997). These streams seem to have been accepted as constituting the domain of emotional intelligence (O'Boyle et al., 2011). As mentioned earlier, the mixed model of emotional intelligence has been criticised because it encompasses traditional social skill or trait measures as well as ability emotional intelligence measures (Ashkanasy & Daus, 2005). It is against this background that the present study focused on the trait and ability measures, as they seem to tap from distinct yet similar constructs. However, to obtain a more in-depth insight into individual models, all the three models will be discussed in detail in the next section. The relationship between emotional intelligence, cognitive intelligence, personality and job performance has also been outlined in this section at a higher level. The next section discusses individual models of cognitive intelligence and emotional intelligence relevant to this study in more detail. Also, the relationship between the models among themselves and the relationship between the models and job performance and personality will also be discussed.

3.2.3 Emotional intelligence: theoretical models

This section discusses the theoretical models of emotional intelligence, specifically focusing on the ability and trait emotional intelligence models. Though not relevant for this study, mixed

model emotional intelligence will also be discussed, albeit at a high level for reasons of clarity. The relationship of these models with cognitive intelligence on the one hand, and personality and job performance on the other, is also discussed.

3.2.3.1 Trait model of emotional intelligence

Research on trait emotional intelligence has gathered significant momentum in the past few years and this has helped to establish a nomological network for the construct (Gökçen, Furnham, Mavroveli, & Petrides, 2014; Sanchez-Ruiz, Perez-Gonzalez, & Petrides, 2010). It is therefore vital for research to be directed at testing the predictive validity of such a construct in relation to job performance, as well as its relationship with other variables influencing job performance, to determine the nature of this psychological construct. Petrides and Furnham (2003) define trait emotional intelligence as a group of emotion-related self-perceptions and dispositions which can be assessed through self-reports. More specifically, Petrides, Pita, and Kokkinaki (2007) view trait emotional intelligence as a collection of emotion-related self-perceptions and dispositions located at the lower levels of personality hierarchies. It is important now to focus the reader by distinguishing between trait emotional intelligence and ability emotional intelligence. Theoretically, the former is closely related to emotional self-efficacy and is measured by self-report questionnaires (Petrides & Furnham, 2003). For Petrides and Furnham (2003), the latter is emotional ability measured by performance tests that are based on items that have one correct answer. In contrast to ability emotional intelligence, the operationalisation of trait emotional intelligence is straightforward because it explicitly recognises the inherent subjectivity of emotions (Petrides et al., 2007).

Petrides, Sangareau, Furnham, and Frederickson (2006) criticise ability emotional intelligence in favour of trait emotional intelligence. These authors (Petrides et al., 2006) assert that the notion of trait emotional intelligence being mainly concerned with a group of emotion-related self-perceived abilities and dispositions measured via self-reports is what distinguishes it from ability emotional intelligence. Accordingly, they attack ability measures from a content perspective. Specifically, Petrides et al. (2006) argue that emotional experiences are quite subjective' and this negates the quest for developing ability emotional intelligence items that can be objectively scored. As they sum up, in support of the nomological network of trait emotional intelligence, Petrides et al. (2006) contend that it is difficult for one to pinpoint correct feelings that people experience and incorrect ones that they should try to inhibit.

One of the criticisms of trait emotional intelligence emanates from the proposition that it can be subsumed within the personality space, primarily because of its subjectivity (Gardner &

Qualter, 2010). Although the trait emotional intelligence construct aims can be subsumed under the same umbrella of the key affect-related personality facets, Mikolajczak, Roy, Verstrynge, and Luminet (2009) argue that the conceptualisation of trait emotional intelligence varies from a descriptive point of view in line with different measures of the construct. For example, Petrides and Furnham (2003) conceptualise trait emotional intelligence in terms of four main dimensions, namely, emotionality, well-being, sociability, and self-control. In defence of their model, Petrides and Furnham (2003) argue that their conceptualisation of trait emotional intelligence is quite robust because the construct can be distinguished from personality and can be isolated from both the Big Five and the Giant Three personality factor space.

Schutte et al. (2009) present another perspective to the conceptualisation of trait emotional intelligence which, like Petrides and Furnham's (2003) conceptualisation, is based on Salovey and Mayer's (1990) original model of emotional intelligence. According to Schutte et al. (2009) emotional intelligence has four factors. These factors include perception of emotion, managing own emotions, and utilisation of emotion. There are several views of trait emotional intelligence, but all trickle down to the same conceptualisation of emotional intelligence as a non-cognitive affective psychological construct. Figure 3.1 further illustrates the model.

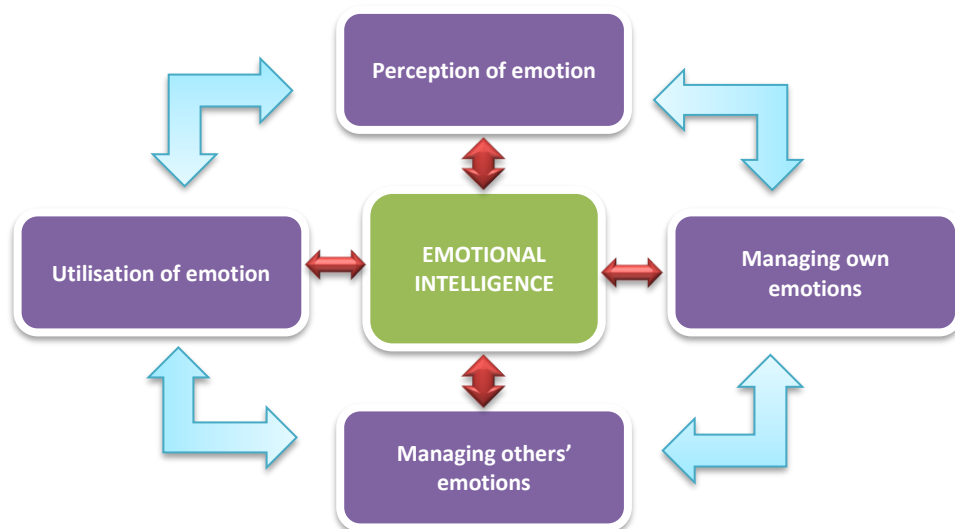


Figure 3.1: Researcher's pictorial representation of Schutte et al.'s (1998) model of trait emotional intelligence

According to Mikolajczak et al. (2009), evidence suggests that trait emotional intelligence is rich from both explanatory and predictive viewpoints. This is also supported by the study conducted by Hui-Hua and Schutte (2015). Mikolajczak et al. (2009) points out that trait emotional intelligence is useful because it combines within one framework the main individual

differences in the levels of affect which have been hitherto scattered across the basic Big Five personality dimensions. Mikolajczak et al. (2009) also mention that trait emotional intelligence has demonstrated incremental validity in predicting a number of behaviours, emotional responses and achievements over and above established constructs such as the Big Five. In a study on the influence of trait emotional intelligence on job performance, Wu (2011) found out that individuals with high emotional intelligence are likely to have the capacity to be aware of, regulate and utilise their emotions effectively as well as their relationships with others and this leads to better job performance. Jung and Yoon (2012) found that trait emotional intelligence predicts organisational citizenship behaviour at significant levels. This also seems to confirm an earlier assertion by Goleman (1998) that emotional intelligence positively influences job performance and is positively correlated with various organisational outcomes.

Gardner and Qualter (2010) point out that the utility of any predictor of job performance is not merely measured by its predictive validity, but also by incremental validity over and above existing predictors of job performance. Accordingly, they argue that the usefulness of a measure is put to the test if it cannot account for additional variance in relevant criteria (Gardner & Qualter, 2010). To this end, the incremental validity and predictive power of trait emotional intelligence on job performance has been tested in various studies (e.g. Joseph & Newman, 2010; O'Boyle et al., 2011). It follows then that the primary concern when testing the incremental validity of trait emotional intelligence is whether it shares significant proportion of variance with the emotionally laden variables of the Big Five (Gardner & Qualter, 2010), since trait emotional intelligence is a lower order personality trait (Petrides et al., 2007). In this regard, meta-analyses by Joseph and Newman (2010) and O'Boyle et al. (2011) have shown that trait emotional intelligence has incremental validity beyond personality and cognitive intelligence better than ability emotional intelligence. With regard to the latter study, trait emotional intelligence has been found to be better related to mixed model emotional intelligence than both cognitive intelligence and ability emotional intelligence. There is also general agreement in emotional intelligence research that trait emotional intelligence predicts performance in high emotional labour jobs (Joseph & Newman, 2010; O'Boyle et al., 2011).

Using the Schutte Emotional Intelligence Scale (Schutte et al., 1998), Schutte, Schuettpeitz, and Malouff (2001) investigated the relationship between emotional intelligence and the performance of cognitive tasks in the form of anagrams. They found that when problems are frustrating and difficult, individuals with high emotional intelligence perform better than those with low emotional intelligence. They argue that emotions are essential components of consciousness and cognition because they aid the cognitive functioning process. One may, therefore, argue that if emotional intelligence influences performance on cognitive tasks, this

should be expected to translate into the world of work since job performance involves dealing with seemingly complex cognitive tasks. This may not, however, be a substitute for real work cases involving the influence of emotional intelligence on job performance. Thus, empirical research is still needed to determine the true influence of trait emotional intelligence on job performance.

In a study by Wu (2011) in which the AES (Schutte et al., 1998) was used, trait emotional intelligence was found to have a significant positive relationship with job performance at $r = .44$, $p < .001$. This seems to be a positive development, especially concerning the utility of trait emotional intelligence in occupational settings. It is necessary to note that in measuring job performance, Wu (2011) used a self-appraisal measure originally developed by Dubinsky and Mattson (1979) and later modified by Singh, Verbeke, and Rhoads (1996). This is a measure where the individual rates themselves on their perceived level of job performance on a five-point scale. The fidelity of this measure may, however, be questioned in cases where individuals are driven by motivational distortion in responding to the job performance questionnaire. Thus, a more direct measure of performance covering all facets of job performance (task and contextual) is required for researchers to reach better conclusions about the relationship between trait emotional intelligence and job performance.

There is also some research pointing to the utility of trait emotional intelligence in predicting job performance. In their investigation of the relationship between emotional intelligence, personality and job performance, Hui-Hua and Schutte (2015) found emotional intelligence to be positively related to task performance among Chinese students. This demonstrates the utility of trait emotional intelligence in job settings.

The next section discusses the ability model of emotional intelligence.

3.2.3.2 Ability model of emotional intelligence

The conceptualisation of emotional intelligence as an ability is rooted in the works of Mayer and Salovey (1997). Mayer, Salovey, and Caruso (2004) admit that their own thinking about emotional intelligence was influenced by the need to broaden the study of intelligence by attending to multiple specific intelligences as theorised by Gardner (1983) and Sternberg (1985). Although the original conceptualisation of emotional intelligence by Salovey and Mayer (1990) was not cognitive in focus, they later refined their model to exclude other emotional functions related to the lower-level hierarchy of personality (Mayer & Salovey, 1997). Thus, their current model is decidedly cognitive in focus (Mayer & Salovey, 1997). Mayer and

Salovey's (1997) model has four branches which include emotion perception, using emotions to facilitate thought, understanding emotions, and managing emotions.

By 1998, Davies, Stankov, and Roberts (1998) were also working on the conceptualisation of emotional intelligence, also building on the work of Mayer and Salovey (1997). They defined emotional intelligence in terms of four main areas. First, appraisal and expression of emotions in self or self-emotion appraisal relates to one's ability to understand one's deep emotions and express them naturally. Second, appraisal and recognition of emotions in others or other's emotion appraisal refers to one's ability to perceive and understand emotions of other people. Third, regulation of emotion in self refers to the ability to regulate one's emotions and recover from emotionally stressful experiences. Fourth, the use of emotion to facilitate performance or simply put, use of emotion, is the ability to use one's emotions especially by channelling them towards constructive activities and enhancing performance.

In developing their measure of ability emotional intelligence, Wong et al. (2004) used the conceptualisation of emotional intelligence outlined in the preceding paragraph. Thus, Wong's Emotional Intelligence Scale (WEIS) emerged from this conceptualisation (Wong et al., 2004). As a result, Wong, Wong, and Law (2007) conclude that there is a general convergence in the definition and conceptualisation of ability emotional intelligence.

Given the background related so far, it is not surprising that the conceptualisation of emotional intelligence as ability has been widely endorsed by researchers and this has resulted in further research with regard to the nomological network of the concept, including its criterion-related and predictive validity (Blickle et al., 2009; Cote & Miners, 2006; Wong et al., 2004). Zeidner, Matthews, and Roberts (2004) argue that from an abilities perspective, emotional intelligence is viewed as a well-defined and conceptually related set of cognitive abilities for the processing of emotional information and regulating emotions adaptively. Wong et al. (2004) also demonstrate that ability emotional intelligence is distinct from cognitive intelligence and personality. More specifically, ability emotional intelligence is viewed as the intelligence that involves the use of emotion (Davies et al., 1998; Mayer & Salovey, 1997; Wong et al., 2004). Accordingly, Mayer et al. (2004) argue that emotional intelligence has similarities with other types of intelligence in that it should reflect a type of ability or aptitude and be related to other abilities. In addition, they posit that like other forms of intelligence, emotional intelligence should develop with age and experience (Mayer et al., 2004). While he admits that Mayer and Salovey's (1997) model is developmental, of which the complexity of emotional skill grows from the first tier to the fourth, Goleman (2001) argues that this model fits the general

conceptualisation of emotional intelligence as the ability to regulate and recognise emotions in the self and others.

In support of their ability model, Mayer and Salovey (1997) and Mayer et al. (2004) argue that emotional intelligence meets the standard of traditional intelligence in three areas. First, they argue that test items for ability emotional intelligence can be standardised such that there are correct answers as evidenced by consensus scoring (Mayer et al., 2004). Thus, for Mayer et al. (2004), if the majority of people choose the same answer to an emotional intelligence test problem, then that answer should be more or less regarded as the correct response to emotional situations. The second method, the expert scoring method, involves experts judging the correctness or correct answers to tests. This method has, however, been criticised by Petrides et al. (2006) who argue that the subjective nature of emotional experience undermines the quest for developing a comprehensive range of ability emotional intelligence items that can be scored according to truly objective criteria. As pointed out above, Petrides et al. (2006) indicate that it may be difficult to argue with confidence that correct and incorrect feelings exist among normal people. Petrides et al. (2006) also point out that the correctness of answers to ability emotional intelligence tests is based on people's judgements and not on fact.

Mayer and Salovey (1997) claim that ability emotional intelligence factorially shows a specific pattern of correlations similar to traditional intelligence tests and should correlate modestly with other intelligences. Thus, Mayer and Salovey (1997) argue that ability emotional intelligence, though divided into the four-branch model, is unitary in nature (Mayer et al., 2004). In support of this, Wong et al. (2004) also argue that ability emotional intelligence is distinct from cognitive intelligence and personality.

Zeidner et al. (2004) point out that from a theoretical perspective, ability emotional intelligence involves the understanding of emotions, the assimilation of emotion in thought and the use of emotion to enhance thought, and emotional regulation. According to Mayer et al. (2000), the typical facets of ability emotional intelligence include the four major branches, namely, identification, understanding, usage, and regulation of emotion. From a morphological point of view, Mayer and Salovey's (1997) conceptualisation of emotional intelligence comprises four levels of abilities. These abilities range from basic psychological processes to more complex processes involving the integration of emotion and cognition (Mayer et al., 2000). Zeidner et al. (2004) and Wong et al. (2004) posit that from a measurement point of view, ability emotional intelligence is best assessed by standardised objective tests with expert scoring.

As seen in the literature, Mayer and Salovey (1997) can be credited with creating the concept of ability emotional intelligence. This led to the development of the Mayer, Salovey, and Caruso Emotional Intelligence Scale (MSCEIT) (Mayer et al., 2002). In 2004, Wong et al. (2004) used the same conceptualisation to develop Wong's Emotional Intelligence Scale (WEIS), the instrument used as a measure of emotional intelligence for this study. Thus, Figure 3.2 below illustrates Mayer et al.'s (2002) and Wong et al.'s (2004) conceptualisation of their models of ability emotional intelligence.

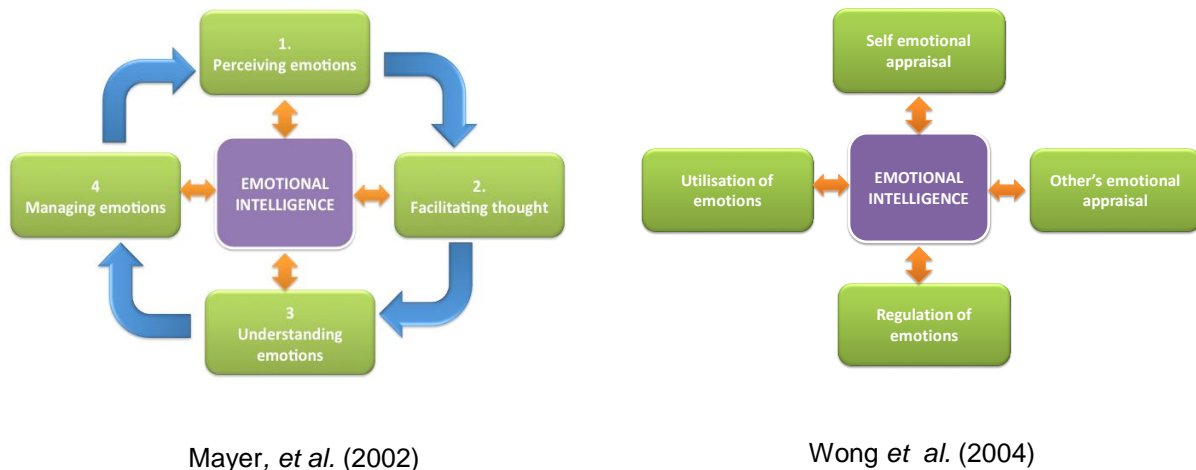


Figure 3.2: Researcher's pictorial representation of Mayer et al.'s (2002) and Wong et al.'s (2004) models of emotional intelligence.

There are also variations in the conceptualisations of ability emotional intelligence, but all boil down to the same concept of consensus scoring (Schmidt-Atzert & Bühner, 2002). Schmidt-Atzert and Bühner (2002) conceptualise emotional intelligence as the ability to correctly appraise, label and understand emotions evoked by situations. Like the MSCEIT, Schmidt-Atzert and Bühner's (2002) measure of emotional intelligence is based on objective scoring. However, just like the MSCEIT (Mayer et al., 2002), can researchers conclude that consensus rating is the correct answers to someone's expression of emotions?

Zeidner et al. (2004) note that research has vindicated ability emotional intelligence in predicting occupational success. With regard to ability emotional intelligence, the assumption is that individuals with high emotional intelligence and, in particular, emotional reasoning skills are able to understand theirs and others' emotions better. This assists them to effectively self-regulate their behaviours and thoughts (Mayer & Salovey, 1997). In an old study on emotional intelligence and job performance, Janovics and Christiansen (2001) found that emotional intelligence as measured by the MCSEIT (Mayer et al., 2002) was correlated with job

performance at $r = .22$. When analysed closely, of the four branches of emotional intelligence, only emotional perception and understanding emotions were significantly correlated to job performance at $r = .14$ and $r = .30$, respectively. Their regression model encompassing personality, emotional intelligence, and cognitive ability revealed a 3% incremental validity of ability emotional intelligence as measured by the MSCEIT (Mayer et al., 2002) on job performance.

Gooty et al. (2014) found ability emotional intelligence to be indirectly related to task performance through emotional focused coping. They (Gooty et al., 2014) define emotion-focused coping as a constellation of strategies that an individual uses to manage the emotion itself as opposed to strategies employed to deal with the emotion-inducing event. They argue that emotion-focused behaviour is not a maladaptive strategy as indicated by Rodell and Judge (2009), but instead suggest that it aids task performance. The reason is that individuals with high ability emotional intelligence resort to emotion-focused coping, which allows them to ignore engaging in thoughts that distract them from focusing on achieving their goals. Gooty et al. (2014) assert that emotion-focused coping can aid task performance immediately after an individual experiences emotionally-laden work events. They (Gooty et al., 2014) point out that this is because emotion-focused coping causes an individual to focus the behavioural and cognitive resources on completing the task itself and by letting go of and avoiding attempts to resolve events that cause emotion. To this end, Gooty et al. (2014) posit that individuals with high ability emotional intelligence engage better in emotion-focused coping, thereby performing better on tasks than individuals with low ability emotional intelligence.

One of the studies on the relationship between ability-based emotional intelligence and contextual performance is presented by Greenidge et al. (2014). Greenidge et al. (2014) found that the four dimensions of ability-based emotional intelligence are positively correlated with contextual performance (organisational citizenship behaviour) and inversely correlated with counterproductive work behaviour. In their study of the relationship between emotional intelligence, frontline employee adaptability, job satisfaction and job performance, Sony and Mekoth (2016) found ability-based emotional intelligence to be positively correlated with job performance. Fallon et al. (2014) found ability emotional intelligence to be a predictor of job performance through better decision-making. Blickle et al. (2009) found that the Test of Emotional Intelligence (TEMINT, Schmidt-Atzert & Bühner, 2002), an ability measure of emotional reasoning skills can explain variance in job performance beyond cognitive intelligence and personality. Meta-analysis has revealed that ability emotional intelligence measures have very low incremental validity beyond cognitive intelligence as they explain only 0.4% of the variance in job performance beyond cognitive intelligence (O'Boyle et al., 2011).

Concerning mixed models, the relationship between the MSCEIT (Mayer et al., 2002) and the self-report Bar-On Emotional Quotient Inventory (EQ-i) (Bar-On, 1997) ranges from $r = .12$ to $r = .21$ (Brackett & Mayer, 2003; Mayer et al., 2002). This points to the fact that mixed model emotional intelligence measures tap into areas of emotional intelligence that are not assessed by the MSCEIT of Mayer et al. (2002). However, low correlations have been reported between ability emotional intelligence as measured by the MSCEIT of Mayer et al. (2002) and personality (Joseph & Newman, 2010). The reason may be that ability emotional intelligence is measured by objective tests while personality is measured by self-reports (O'Boyle et al., 2011). With regard to cognitive intelligence, Austin (2010) notes that correlations between the MSCEIT of Mayer et al. (2002) and measures of cognitive intelligence as measured by general mental ability have been found to be in the range of .25 to .32. It is interesting to note that studies have found ability emotional intelligence to be highly correlated with cognitive intelligence at significant levels (Cote & Miners, 2006; Joseph & Newman, 2010).

With regard to trait emotional intelligence, Brackett and Mayer (2003) found a low correlation of $r = .18$ between the MSCEIT and the Self-Report EI Scale (SREIS) or Assessing Emotions Scale (AES) developed by Schutte et al. (1998). Goldenberg, Matheson, and Mantler (2006) found a correlation of $r = .04$ between the SREIS (AES) and the MSCEIT. When compared with personality, Austin, Farrelly, Black, and Moore (2007) found that the relationship between personality and the MSCEIT to be $-.07$, $.03$, $.11$, $.21$ and $-.11$ for extraversion, openness, agreeableness, neuroticism and conscientiousness respectively.

The next section discusses the mixed model of emotional intelligence.

3.2.3.3 Mixed models of emotional intelligence

The mixed models of emotional intelligence comprise measures consisting of a combination of trait emotional intelligence and ability emotional intelligence (Austin, 2010). Thus, the conceptualisations of emotional intelligence by Bar-On (1997) and Goleman (2001) fit well within the domain of mixed models of emotional intelligence. Bar-On (1997) defines emotional intelligence as a set of non-cognitive capabilities, competencies and skills that affects one's ability to succeed in coping with environmental demands. O'Boyle et al. (2011) argue that it is because of the seeming overlap with personality traits that the mixed model stream of emotional intelligence drew criticism and that now the whole concept is labelled as emotional intelligence. As a measure, the Bar-On Emotional Intelligence Quotient (EQ-i) (Bar-On, 1997) is typical of mixed models of emotional intelligence.

Ashkanasy and Daus (2005) point out that tests of the mixed models of emotional intelligence like the Emotional Competence Inventory (Boyatzis & Goleman, 2000) include aspects of personality and social competence. They also point out that such personality and social competence aspects go well beyond the bounds of the original definitions given by Salovey and Mayer (1990). Although recent scales now show improvements, Ashkanasy and Daus (2005) point out that they did not initially fare well regarding empirical evaluation of their reliability and other psychometric properties.

Regarding the relationship with job performance, Cherniss (2010) notes that mixed models may have a better relationship with job performance than trait emotional intelligence. Cherniss (2010) argues that this is because measures of mixed emotional intelligence include components of personality, personal preferences, and attitudes, making it natural for them to capture a broad range of attributes in the trait and ability space, leading to more variance in explaining job performance.

Mixed models of emotional intelligence have also been scrutinised in terms of their relationship with other models of emotional intelligence and personality (O'Boyle et al., 2011). Research shows that mixed models of emotional intelligence have a better relationship with personality measures (just like trait models) than with ability models, mainly because they seem to overlap with personality in terms of the method of measurement and the contents of items (O'Boyle et al., 2011). As a result, they show a higher correlation with personality than with ability measures. O'Boyle et al. (2011) also point out that mixed models have incremental validity beyond cognitive ability and personality, better than ability emotional intelligence and trait emotional intelligence.

3.2.4 Evaluation and synthesis: theoretical models of emotional intelligence

This section provides a synthesis and evaluation of emotional intelligence models. It also motivates the choice of the models and measures used for the assessment of emotional intelligence for the study.

From the literature reviewed, it is apparent that emotional intelligence can be conceptualised as the ability to identify and manage emotions in the self and others to facilitate decision-making (Goleman, 2001). While there is a general agreement on the conceptualisation of emotional intelligence, different authors have proposed different models, which fall into three broad categories or streams (Ashkanasy & Daus, 2005). These streams include trait emotional

intelligence, ability emotional intelligence, and mixed models of emotional intelligence. All three streams are related to each other as well as to cognitive intelligence and job performance at different levels.

As seen from the literature, trait emotional intelligence consists of emotion-related self-perceptions and is distinct from personality, ability emotional intelligence, and cognitive intelligence. Ability emotional intelligence has also been found to be distinct from cognitive intelligence (Joseph & Newman, 2010; O'Boyle et al., 2011). On the other hand, mixed models of emotional intelligence conceptualise emotional intelligence as a mixture of ability, personality traits and other non-cognitive affective components (Ashkanasy & Daus, 2005). While these mixed models may be good predictors of job performance, it may be difficult to separate the contribution made by trait and ability emotional intelligence in their own capacity. As a result, only the trait and ability models of emotional intelligence were adopted for use in the present study because they are clearly defined constructs. Specifically, the trait and ability emotional intelligence measurement instruments used for the present study were, respectively, the AES by Schutte et al. (1998) and Wong's Emotional Intelligence Scale (WEIS) (Wong et al., 2004). Having discussed the conceptualisation of emotional intelligence and the applicable models, the next section provides a theoretical integration of cognitive and emotional intelligence models.

3.3 INTEGRATION OF THEORETICAL MODELS: COGNITIVE INTELLIGENCE AND EMOTIONAL INTELLIGENCE

This section provides a theoretical integration of cognitive intelligence, ability emotional intelligence, mixed model emotional intelligence, and trait emotional intelligence. In order to provide clarity, Table 3.1 summarises the integration:

Table 3.1

Integration of Cognitive and Emotional Intelligence Models

Dimensions	Cognitive and emotional intelligence models			
	General mental ability (Spearman, 1904, 1927a)	Trait model (Schutte et al., 1998; Petrides & Furnham (2003) and others)	Ability model (Mayer & Salovey, 1997; Wong & Law, 2004).	Mixed model (Bar-On, 1998; Boyatzis & Goleman, 2000)
Construct definition	Cognitive Intelligence is unitary and predicts performance across most occupations.	A constellation of emotion-related self-perceptions and dispositions assessed through self-reports and located at the lower level of the personality hierarchy.	Well-defined, conceptually related set of cognitive abilities necessary for processing emotional information and adaptively regulating emotions.	An array of non-cognitive capabilities and skills that influence the ability to cope with environmental demands and pressures.
Components	Cognitive ability is subsumed under one general factor of intelligence (g) which defines intelligence as unitary in nature.	Components vary depending on the test developer but must demonstrate good construct and predictive validity.	Components vary depending on the test developer but must demonstrate good construct and predictive validity.	Components vary depending on the test developer but must demonstrate good construct and predictive validity.
Link with personality	Apart from high relationship with conscientiousness and intuition, relationship with personality is low.	High positive relationship with personality.	Low relationship with personality	Moderate relationship with personality
Link with job performance	Very high relationship with job performance across most if not all occupations	Some relationship with job performance but predicts job performance better for emotional labour jobs. High incremental validity beyond cognitive intelligence.	High relationship with job performance for most occupations. Little incremental validity beyond cognitive intelligence.	Moderate relationship with job performance. Predicts job performance better for high emotional labour jobs.
Usefulness/ application to personnel selection	Best single predictor of job performance across occupations.	Low to moderate relationship with job performance but predicts job performance better in emotional labour jobs.	High relationship with job performance for most jobs, but redundant with cognitive intelligence.	Moderate to good relationship with job performance but predicts job performance better in emotional labour jobs.

Cognitive intelligence as measured by general mental ability is viewed as a unitary construct that predicts job performance across all occupations (Brough, Johnson, Drummond, Pennisi, & Timms, 2011; Hunter & Schmidt 2004). Ability emotional intelligence, which conceptualises emotional intelligence as ability, has a high relationship with cognitive intelligence, but low

incremental validity beyond the latter. Trait emotional intelligence, on the other hand, consists of emotion-related self-perceptions located at the lower-level personality hierarchy. Although it has the lowest relationship with job performance compared to the other three variables, as well as a low relationship with both cognitive and ability emotional intelligence, it has better incremental validity over and above cognitive intelligence than ability emotional intelligence (O'Boyle et al., 2011). Mixed-model emotional intelligence conceptualises emotional intelligence as a mixture of ability, personality traits and other non-cognitive affective components. Since it taps from various areas, mixed-model emotional intelligence has been found to have a better relationship with job performance than trait emotional intelligence (O'Boyle et al., 2011).

Traditionally, cognitive intelligence has been viewed as the single best predictor of job performance (Hunter & Schmidt, 2004). The importance of ability emotional intelligence in predicating job performance has increased, with some researchers suggesting that it predicts job performance when cognitive intelligence is low (Cote & Miners, 2006). As a construct, trait emotional intelligence is viewed as being distinct from cognitive and ability emotional intelligence. However, inconclusive research on mixed models emotional intelligence has resulted from its seeming lack of a clear construct definition, especially with regard to its relationship with personality (O'Boyle et al., 2011). For this reason, mixed models emotional intelligence was not included in this study. The relevant variables for this study at this point are cognitive intelligence, ability emotional intelligence and trait emotional intelligence. The mixed model of emotional intelligence was not chosen because it appears to borrow from both ability and trait emotional intelligence thus confounding its true relationship with job performance.

3.4 VARIABLES INFLUENCING COGNITIVE AND EMOTIONAL INTELLIGENCE

This section discusses the influence of age, gender, job tenure, and job type on cognitive intelligence, ability emotional intelligence, and trait emotional intelligence.

3.4.1 Age

Research suggests that there is a low relationship between age and trait emotional intelligence (Goldenberg et al., 2006). Specifically, Goldenberg et al. (2006) discovered that age was neither related to the total trait emotional intelligence score as measured by the AES of (Schutte et al., 1998) nor to any of its subscales at significant levels. Mikolajczak et al. (2007) also found a low relationship between age and trait emotional intelligence using the TQue

(Petrides & Furnham, 2003). In addition, Kemp et al. (2005) also found no significant relationship between age and trait emotional intelligence. In their study on the role of trait emotional intelligence in a gender-specific model of organisational variables, Petrides and Furnham (2006) found that age was related to trait emotional intelligence in males but not females, perhaps pointing to the gender differences in trait emotional intelligence discussed above. This may also suggest that age does not moderate the relationship between trait emotional intelligence and job performance.

It is, however, interesting to note that there was a positive correlation between age and total MSCEIT (Mayer et al., 2002) scores (Goldenberg et al., 2006). In addition, Goldenberg et al. (2006) note that age is positively correlated with the subscales Understanding Emotions and Managing Emotions of the MSCEIT (Mayer et al., 2002) but not with Perceiving Emotions or Using Emotions. This seems to fit emotional intelligence into the abilities domain since research shows that abilities should develop with age (Goldenberg et al., 2006). This also appears to be in line with Mayer and Salovey's (1997) postulate that abilities develop with age and experience. For example, Cote and Miners (2006) argue that ability emotional intelligence is developmental. Just like cognitive intelligence, it develops over time and should, therefore, be positively related to age (Cote & Miners, 2006). Extremera et al. (2006) found that age is significantly positively related to ability emotional intelligence, albeit at low levels, and therefore is not likely to interfere much with the relationship between ability emotional intelligence and job performance.

In their study, which compared the cognitive ability and job attitudes of older and younger workers, Brough et al. (2011) found no significant differences in cognitive intelligence between the groups. These authors (Brough et al., 2011) point out that older employees are as cognitively skilled for their job as their younger counterparts. Gallagher and Burke (2007) tested the effects of age with six age groups ranging from 16 to 69 years, subsequently finding no significant relationship between IQ and age. However, Rabbitt, Chetwynd, and McInnes (2003) tested the general mental ability of participants aged between 49 and 92 and found that cognitive intelligence declines with age. The study cited in the preceding sentence seems consistent with recent research which revealed significant age groups differences with younger employees scoring higher of cognitive intelligence than older employees (Klein, Dilchert, Ones, & Dages, 2015). Accordingly, Rabbitt et al. (2003) conclude that cognitive intelligence seems to have a negative relationship with age in the later stages of life. Research cited in this paragraph appears to indicate that cognitive intelligence remains stable with age, at least until the late 40s. If age is stable with age, it seems to imply when applied to the field of personnel selection that age is unlikely to interfere in the relationship between cognitive

intelligence and job performance. However, the present study focused only on a working population of people that has not reached retirement age. Thus, from a theoretical point of view, age is not likely to moderate the relationship between cognitive intelligence and job performance.

3.4.2 Gender

Research suggests that gender influences trait emotional intelligence (Petrides & Furnham, 2006). Goldenberg et al. (2006) found that women scored better on emotional intelligence than men. Using the AES (Schutte et al., 1998), a measure of trait emotional intelligence, they found that women scored higher than men on the total AES score, as well as on the appraisal of emotions and the utilisation of emotion subscales. Petrides and Furnham (2006) also noted the same trend. Petrides and Furnham (2006) support their argument by the proposition that females are more exposed to job and family-related interpersonal stress than their male counterparts because they act as both mothers and professionals. Petrides and Furnham (2006) posit that this observation is not only related to the beginning of a career but runs through even to mid-career levels. In another study, Kemp et al. (2005) also found out that females scored higher on the Brain Resource Inventory for Emotional Intelligence Factors (BRIEF, Kemp et al., 2005).

Using the Trait Emotional Intelligence Questionnaire (TQue) developed by Petrides and Furnham (2003), Mikolajczak, Luminet, Leroy, and Roy (2007) confirm that females tend to score higher on trait emotional intelligence than their male counterparts. An even earlier observation by Mandell and Pherwani (2003) confirmed that males score lower on trait emotional intelligence than females. In a study on the relationship between gender, age, academic achievement, emotional intelligence and coping styles, Alumran and Punamäki (2008) also found that female adolescents score higher on trait emotional intelligence than their male counterparts.

As early as 1999, researchers warned about the potential influence of gender on ability emotional intelligence (Kafetsios, 2004; Mayer et al., 2002). Goldenberg et al. (2006) found that women scored higher on the total MSCEIT and on the managing emotions branch. It is important to point out that, as Goldenberg et al. (2006) note, the relationship between gender and emotional intelligence was not consistent across both measures although they were different on the total score. In their study with a Spanish sample, Extremera, Fernández-Berrocal, and Salovey (2006) found significant gender differences in ability emotional intelligence using the MSCEIT of Mayer et al. (2002). Specifically, Extremera et al. (2006)

found that women scored higher than men on both the total score and on all four branches. Extremera et al. (2006) note that these findings are consistent with previous research done in different environments (Kafetsios, 2004; Mayer et al., 2002; Palmer, Gignac, Manocha, & Stough, 2005). This indicates gender differences in ability emotional intelligence, which are likely to result in the potential moderation of the relationship between ability emotional intelligence and job performance.

Flynn (1998) performed a longitudinal analysis of scores on abstract reasoning and instruction tests obtained from the Israeli Defence Force between 1971 and 1984. Flynn (1998) found gender differences to be low on cognitive intelligence. However, in their meta-analysis examining gender differences in verbal ability, Hyde and Linn (1998) report that women tended to score slightly higher than men do. Hyde and Linn (1998), noting the small differences, conclude that gender differences in verbal ability may not actually exist. Gallagher and Burke (2007) investigated the relationship between gender and cognitive intelligence and found no significant differences between male and female participants on IQ scores. Arguments presented hitherto suggest that cognitive intelligence is resistant to, and therefore may not suffer, moderation from gender with regard to its relationship with job performance.

3.4.3 Job tenure

Research has tested whether trait emotional intelligence is stable when job tenure is taken into account (Joseph & Newman, 2010). The results indicate that there is no relationship between job tenure and trait emotional intelligence, thus indicating that job experience is independent of trait emotional intelligence (Joseph & Newman, 2010). One may, however, argue that the answer may be that people in such positions quickly or shape up or ship out of a job, a situation that may result in self-selection. Although cognitive intelligence seems to be developmental, it has been seen to be stable with job tenure, thus showing no effect (Cote & Miners, 2006; Mayer & Salovey, 1997). The same has been found in respect of ability emotional intelligence (Cote & Miners, 2006).

3.4.4 Job type

Cognitive and emotional intelligence have been evaluated in terms of their stability regarding job type. With regard to trait emotional intelligence, Brotheridge and Grandey (2002) argue that employees occupying high emotional labour jobs like sales, customer and human service jobs are more likely to have higher emotional intelligence than employees that do not have to interact with people. Brotheridge and Grandey (2002) also note that people occupying non-

technical and non-physical jobs develop the art of dealing with people and therefore develop better emotional intelligence in the long run. Mikolajczak et al. (2007) also found out that female social healthcare workers scored higher on trait emotional intelligence than their unemployed counterparts. This seems to suggest that although females score higher on trait emotional intelligence than males, job type moderates these subgroup differences. A meta-analytic study by Joseph and Newman (2010) confirms that trait emotional intelligence predicts job performance in only high emotional labour jobs. O'Boyle et al. (2011) also confirm these findings.

Although research suggests that emotional intelligence is more strongly related to job performance in emotionally demanding jobs (Joseph & Newman, 2010; O'Boyle et al., 2011; Wong & Law, 2002), Cote and Miners (2006) posit that ability emotional intelligence has no relationship with job type. They argue that ability emotional intelligence is another form of intelligence just like cognitive intelligence. In their study on cognitive intelligence, emotional intelligence, and job performance, Cote and Miners (2006) contend that ability emotional intelligence predicts job performance in most if not all occupations (irrespective of occupational categories). In fact, Cote and Miners (2006) propose a compensatory model in which emotional intelligence compensates for low cognitive intelligence, as they argue that effective social interactions, high motivation and right decisions contribute to job performance in most if not all jobs.

With regard to cognitive intelligence, tests of general mental ability have been found to predict job performance across occupations. For example, research carried out by Bertua et al. (2005) demonstrated that tests of cognitive intelligence produce generalised validity across all occupational groups.

The next section provides integration of variables influencing cognitive and emotional intelligence.

3.4.5 Integration of variables influencing cognitive and emotional intelligence

Table 3.2 integrates the variables that influence cognitive and emotional intelligence.

Table 3.2

Integration of Variables Influencing Cognitive and Emotional Intelligence

Demographic variables	Cognitive and emotional intelligence models		
	General mental ability	Ability model	Trait model
Gender	No influence	Females tend to score higher than males.	Females tend to score higher than males.
Job type	No influence	No influence	Employees in high emotional labour occupations tend to score higher.
Age	No influence	No influence	No influence
Job tenure	No influence	No influence	No influence

3.5 THEORETICAL INTEGRATION: TOWARDS CONSTRUCTING A PERSONNEL SELECTION MODEL

The literature on the influence of cognitive intelligence and trait emotional intelligence on job performance was reviewed in this chapter. The relationship between cognitive intelligence and emotional intelligence, as well as with personality, has also been reviewed. An attempt has also been made to determine the relationship between cognitive intelligence, emotional intelligence, and the sociodemographic variables of age, job type, gender and job tenure. This section focuses only on theoretical integration with regard to the influence of cognitive intelligence, emotional intelligence (ability and trait) and sociodemographic variables on job performance. A discussion of the influence of personality is reserved for the Chapter 4. Figure 3.3 illustrates the proposed links between the variables as derived from the literature:

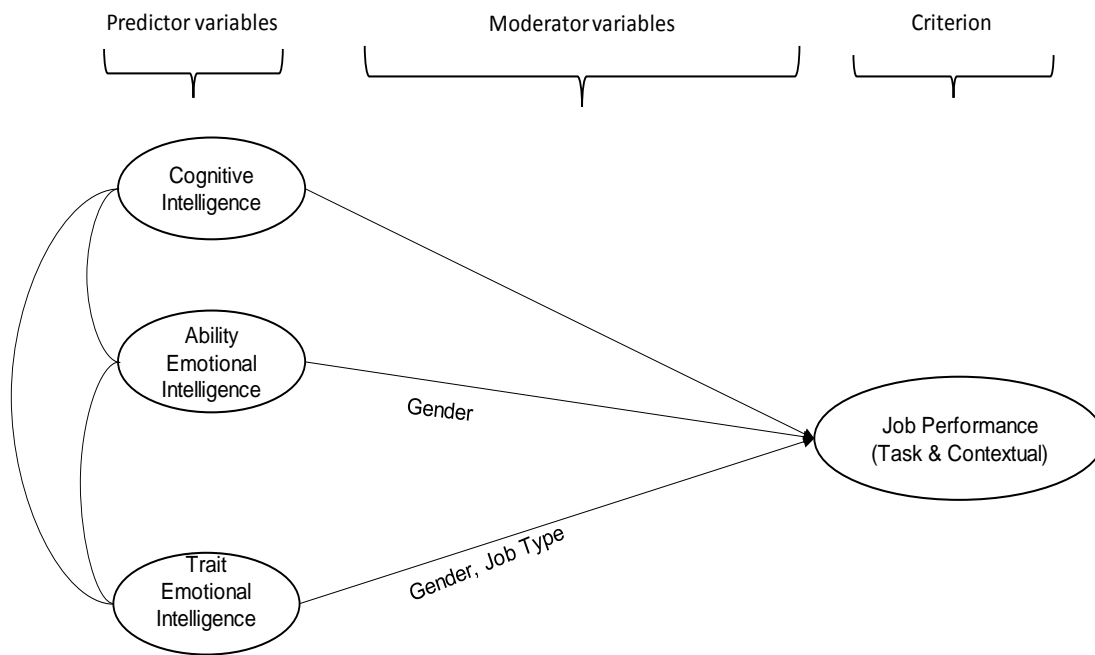


Figure 3.3: Proposed link between the variables: towards constructing a personnel selection model

The arrangement of the main variables influencing job performance has deliberately been presented with the top (vertical to bottom) variables having the highest influence on job performance according to the literature review. A wide body of research has already shown that cognitive intelligence as measured by general mental ability is perhaps the single best predictor of job performance in almost all jobs (Hunter & Schmidt, 2004, O'Boyle et al., 2011, Willis et al., 2011). In the literature, the discussion on the discovery of ability emotional intelligence is interesting as the proponents argue that it falls within the domain of traditional intelligence, just like cognitive intelligence (Cote & Miners, 2006; Salovey & Mayer, 1997). It is therefore not surprising that, as depicted in the diagram in Figure 3.3, ability emotional intelligence has the second most influence on job performance in most if not all jobs (Joseph & Newman, 2010). Research has also shown a high positive correlation between cognitive intelligence and ability emotional intelligence, suggesting that these two constructs tap from similar cognitive resources (O'Boyle et al., 2011). Of particular to note is Cote and Miners' (2006) proposition of a compensatory model where ability emotional intelligence becomes more positively related to job performance as cognitive intelligence decreases. This finding does not only suggest a complementary relationship between the two variables but also has profound implications for personnel selection (to be discussed in the next section). Both cognitive intelligence and ability emotional intelligence have been seen to be affected by age,

but only up to adolescence (Anastasi & Urbina, 1997; Gregory, 2004; Cote & Miners, 2006). This supports the developmental nature of both variables.

Trait emotional intelligence has been found to have the least influence on job performance when compared with cognitive intelligence and ability emotional intelligence (O'Boyle et al., 2011). This suggests that trait emotional intelligence taps from lower-level hierarchies of personality and is based on purely affective components (Mayer & Salovey, 1997). This is why research has also shown that the relationship between trait emotional intelligence, on the one hand, and cognitive and ability emotional intelligence on the other, is low (Joseph & Newman, 2010; O'Boyle et al., 2011). Trait emotional intelligence has, however, been seen to be influenced by gender and job type, making it the most previous variable concerning interaction effects from sociodemographic variables on its relationship with job performance. Females have been seen to have higher trait emotional intelligence than males. As discussed earlier in this section, people occupying high emotional labour jobs have also been found to have higher trait emotional intelligence. The relationships between cognitive intelligence, emotional intelligence, and sociodemographic variables have implications for personnel selection, which is discussed in the next section.

3.6 IMPLICATIONS FOR PERSONNEL SELECTION

Research suggests that cognitive intelligence as measured by general mental ability is the single best predictor of job performance (Hunter & Schmidt, 2004; Joseph & Newman, 2010; O'Boyle et al., 2011). Although counter-arguments have been proposed supporting the specific abilities approach to the conceptualisation and measurement of cognitive ability (e.g., Thurstone, 1938, 1941), all the tests of cognitive intelligence share a common variance in explaining job performance (Davison & Kemp, 2011). This points to the existence of a general factor of intelligence in the form of general mental ability or cognitive intelligence that predicts job performance across occupations. Those who advocate for specific abilities or differential aptitude testing would argue that specific jobs should be assessed using specific tests of cognitive ability. However, if one requires an easy and affordable but valid measure of job performance, cognitive intelligence tests may become an answer, since cognitive intelligence predicts performance across occupations (Hunter & Schmidt, 2004; Joseph & Newman, 2010; O'Boyle et al., 2011). Although cognitive intelligence is developmental in nature (Anastasi & Urbina, 1997), research shows that it is not affected by age, gender, job tenure, and job type. In addition, cognitive intelligence does not suffer interaction from job tenure (Cote & Miners, 2006). This places cognitive intelligence as the best of the occupational assessments to be used in selection contexts.

The conceptualisation of emotional intelligence as an ability by Mayer and Salovey (1997) seems to have put cognitive intelligence to the test. To prove that cognitive and ability emotional intelligence are both intelligences in the traditional sense, research shows a positive and strong relationship between cognitive and ability emotional intelligence (Joseph & Newman, 2010). It is not surprising that ability emotional intelligence adds little incremental validity over and above cognitive intelligence in personnel selection contexts (Joseph & Newman, 2010). This therefore implies that ability emotional intelligence is redundant with cognitive intelligence. Thus, personnel selection practitioners should not spend resources on investing in redundant measures, but may choose only the best of the two measures.

Despite the foregoing, Cote and Miners' (2006) compensatory model, in which they propose that emotional intelligence becomes a more important predictor of job performance as cognitive intelligence decreases, has interesting implications for personnel selection. This seems to suggest that candidates who do not do well on tests of cognitive intelligence but have high ability emotional intelligence may be unfairly rejected. If Cote and Miners' (2006) assertion is proved correct, then tests of cognitive intelligence should be succeeded by, or at least used in conjunction with, ability emotional intelligence in selection contexts. This is because good performers missed during the assessment of cognitive intelligence (because of their low cognitive intelligence) may then be captured by emotional intelligence, provided they exhibit high emotional intelligence. The drawback of the assertion by Cote and Miner (2006) leads to a hypothetical question that, if cognitive intelligence can predict that people with low cognitive intelligence may not perform on the job at required standards, how then do they suddenly perform better if they have high emotional intelligence? It is in the researcher's view that Cote and Miners (2006) could have qualified their assertion by suggesting that emotional intelligence could predict job performance better for high emotional labour jobs, even if cognitive intelligence is low. In terms of the sociodemographic variables, like cognitive intelligence, research presented hitherto suggests that ability emotional intelligence does not seem to be influenced by age, job tenure, and job type. However, gender differences have been found on ability emotional intelligence (Extremera et al., 2006; Kafetsios, 2004; Mayer et al., 2002; Palmer et al., 2005) perhaps calling for differential norming in personnel selection contexts.

Research suggests that trait emotional intelligence has the least relationship with job performance when compared with cognitive intelligence and ability emotional intelligence (Joseph & Newman, 2010; Mayer & Salovey, 1997). However, trait emotional intelligence has been found to predict job performance at significant though low levels (O'Boyle et al., 2011).

Research also suggests trait emotional intelligence has a low correlation with both cognitive and ability emotional intelligence, perhaps because unlike the latter, it taps from the affective domain of the personality space (Petrides et al., 2007). This seems to indicate that trait emotional intelligence is a distinct construct from cognitive and ability emotional intelligence. However, trait emotional intelligence may be useful in personnel selection contexts because it has better incremental validity above cognitive intelligence than ability emotional intelligence (Joseph & Newman, 2010; O'Boyle et al., 2011). This means that for jobs requiring both cognitive and emotional intelligence, trait emotional intelligence measures may provide better utility than ability emotional intelligence measures.

Trait emotional intelligence appears to be stable with age and job tenure (Goldenberg et al., 2006; Joseph & Newman, 2010; Kemp et al., 2005; Mikolajczak et al., 2007) but influenced by gender and job type. It has already been demonstrated that trait emotional intelligence predicts job performance better for high emotional labour jobs (Joseph & Newman, 2010; O'Boyle et al., 2011). This suggests that for jobs that are high in emotional labour but also require both cognitive intelligence and emotional competency, the use of trait emotional intelligence may be a better alternative than ability emotional intelligence.

Research also suggests that gender influences trait emotional intelligence, meaning this may moderate the relationship between trait emotional intelligence and job performance (Goldenberg et al., 2006). This may then suggest that when applied to personnel selection, measures of trait emotional intelligence are likely to favour females rather than males. To avert this disparity, perhaps differential norming may be applied.

In summary, research indicates that cognitive intelligence is the best predictor of job performance across all occupations. If the job demands emotional intelligence in addition to cognitive intelligence, trait measures will have better utility with regard to measuring job performance than ability emotional intelligence measures. However, if only emotional intelligence is required, ability emotional intelligence may be an option, since it predicts job performance better than trait emotional intelligence. From the literature reviewed, it appears that cognitive intelligence may be used across situations since it is not influenced by the sociodemographic variables of age, gender, job tenure, and job type. Trait emotional intelligence has to be used with caution because it is influenced by gender and job type. If it is used, differential norming may need to be applied.

3.7 EVALUATION AND SYNTHESIS

This section provides an evaluation of the literature on the influence of cognitive intelligence, emotional intelligence on job performance, as well as the influence of sociodemographic variables on the relationship. It also provides conclusions from the literature reviewed so far and culminates in stating the research aims that have been hitherto covered.

3.7.1 Evaluation of variables and conclusions from the literature

The purpose of this study was to construct a personnel selection model based on the influence of cognitive intelligence, emotional intelligence (ability and trait), and personality on job performance. In addition, the study also sought to investigate the moderation effects of sociodemographic variables of gender, age, job tenure, and job type on the same relationship. Given this background, conclusions from the literature are outlined in line with the following general areas: construct definition, the relationship between the predictors and job performance, and moderation of sociodemographic variables on the relationship between predictors and job performance.

3.7.1.1 Construct definition

Cognitive intelligence, trait emotional intelligence, and ability emotional intelligence have appeared in the research and literature reviewed as theoretically distinct constructs. Cognitive intelligence theory has stood the test of time and has evolved into a formidable paradigm. There is a thread running through the literature reviewed, demonstrating that almost all tests of cognitive intelligence share a common variance in explaining job performance. This common variance can be explained by the presence of a general factor of intelligence, which may be described as general mental ability. The definition of ability emotional intelligence appears adequate because it is different from non-cognitive measures of emotional intelligence. In addition, it seems to fit the ability domain of intelligence because of objective or forced choice scoring. Trait emotional intelligence appears to have been well defined in the literature. However, its relationship with personality calls for further research in order to distinguish it as a separate construct from other related variables influencing job performance. Mixed model emotional intelligence seems to be loosely defined, with the construct borrowing from ability and trait-based emotional intelligence, as well as from personality. For this reason, the mixed model has been excluded from the proposed personnel selection model.

3.7.1.2 Relationship between the predictors

It appears that the relationship between cognitive intelligence, trait emotional intelligence, and mixed model emotional intelligence has also been satisfactorily addressed. Research has shown that there is a weak-to-moderate or no significant relationship between cognitive intelligence and emotional intelligence (ability and trait).

3.7.1.3 Relationship with job performance:

Cognitive intelligence has been found to have the highest relationship with job performance across all occupations. Ability emotional intelligence, on the other hand, appears to have a high relationship with job performance for most occupations, but not better than cognitive intelligence. However, ability emotional intelligence has been seen to have low incremental validity beyond cognitive intelligence. However, Cote and Miners' (2006) assertion that ability emotional intelligence may compensate for job performance where cognitive intelligence is low needs to be empirically verified in a study like this one, where both variables are simultaneously investigated. The literature reviewed also suggests that trait emotional intelligence has a relationship with job performance, but its predictive power on job performance is lower than that of cognitive intelligence and ability emotional intelligence. However, unlike ability emotional intelligence, trait emotional intelligence has been found to have higher incremental validity over and above cognitive intelligence. Trait emotional intelligence also predicts job performance better in high emotional labour jobs. This indicates that trait emotional intelligence could improve the utility of a personnel selection model that includes either cognitive intelligence or ability emotional intelligence.

3.7.1.4 Moderation of sociodemographic variables

Research suggests that gender has no influence on cognitive intelligence. Females tend to perform better on emotional intelligence (ability and trait) tests, suggesting that gender may moderate the relationship between emotional intelligence (ability and trait) and job performance. Thus, a selection model with emotional intelligence (ability and trait) may be biased towards female candidates and may unfairly discriminate against males.

Job type seems not to influence the levels of cognitive intelligence and ability emotional intelligence. However, trait emotional intelligence has been found to predict job performance for high emotional labour jobs like customer management (Joseph & Newman, 2010; O'Boyle et al., 2011). Thus, where the job performance criterion is defined in terms of emotional labour,

a personnel selection model with trait emotional intelligence may yield better utility than that with cognitive intelligence and ability emotional intelligence.

Both age and job tenure have been found to have no effects on the levels of cognitive intelligence and emotional intelligence (ability and trait). This indicates that these variables are not likely to bring sources of bias to a personnel selection model.

It should be noted, however that the relationship of sociodemographic variables has been determined from either separate studies or from meta-analysis. Overall, apart from meta-analysis, few or no studies have investigated the influence of cognitive intelligence, emotional intelligence and trait emotional intelligence on job performance, including the influence of age, gender, job tenure, and job type on the relationship. These variables need to be investigated within one study to get a clearer understanding of their relationships.

The evaluation and synthesis marks the end of the literature review on cognitive and emotional intelligence. The next section provides a review of research aims that have been covered by the literature reviewed so far.

3.7.2 Review of the aims and sub-aims that have been covered

Concerning the literature review, the specific aims that have been fully covered are as follows:

Research aim 1: To investigate how the research literature conceptualises personnel selection and job performance in general and in contemporary African and Zimbabwean organisational contexts.

Sub-aim 2.1: To conceptualise the theoretical relationship between cognitive intelligence and job performance

Sub-aim 2.2: To conceptualise the theoretical relationship between ability emotional intelligence and job performance

Sub-aim 2.3: To conceptualise the theoretical relationship between trait emotional intelligence and job performance

The following aims and sub-aims have been partly covered:

Sub-aim 2.5: To determine whether the sociodemographic variables influence an individual's level of cognitive intelligence, emotional intelligence (ability and trait), and personality and level of job performance

Research aim 3: To investigate the elements of the theoretical model proposed for personnel selection based on the links between cognitive intelligence, ability emotional intelligence, trait emotional intelligence, personality, and job performance and to determine the implications for personnel selection practices.

3.8 CHAPTER SUMMARY

Chapter 3 focused on reviewing the literature on the conceptualisation of cognitive and emotional intelligence, as well as their relationship with job performance. The chapter traced the origins of cognitive and emotional intelligence as well as discussing applicable models. In addition, the influence of sociodemographic variables on emotional and cognitive intelligence was discussed. The chapter also provided a theoretical integration of the literature and models as well as the implications of the relationships between the applicable variables for personnel selection. The chapter ended with the evaluation and synthesis of the literature discussed in the chapter.

The next chapter focuses on the conceptualisation of personality.

CHAPTER 4: PERSONALITY

This chapter addresses research aim 2.4 and part of research aims 1, 2, 2.5, and 3. The aim of this chapter is to discuss the conceptualisation of personality in line with the analytical and the cognitive-social learning paradigms. In defining the concept of personality, the chapter traces the development of personality theory and discusses, albeit at a high level, the psychodynamic, humanistic, dispositional and social learning theories of personality. The Psychological Types (Jung, 1921, 1971), the Personality Types (Myers, 1987), and the Trait Factor (Costa & McCrae, 1992) models of personality are discussed as they apply to occupational settings. The chapter integrates the different models and then substantiates the model that will be used in the study. The relationships between the personality types and job performance and the sociodemographic variables are also discussed. The chapter integrates theory and discusses the theoretical implications of the variables for personnel selection. The chapter concludes with an evaluation of the literature reviewed.

4.1 CONCEPTUALISATION OF PERSONALITY

This section discusses the conceptualisation of personality, outlining its origins by tracing the development of the personality theory. The link between personality theories and job performance is explored. The section concludes by providing the conceptualisation of personality as it will be interpreted in this study.

4.1.1 Definition of personality

Personality psychologists have not defined the concept of personality in any one way. The major reason for this is an apparent disagreement on the sources of consistency in behaviour patterns and intrapersonal processes among individuals (Burger, 2014). Schultz and Schultz (2016) define personality as relatively enduring and unique internal and external character aspects that influence a person's behaviours in different situations. The subject of personality has drawn the attention of many theorists with each proposing their own views of humanity. Such theorists disagree on the underlying dynamics of personality and the major underlying influences of issues like determinism versus free choice, causality versus teleology, pessimism versus optimism, the conscious versus the unconscious, biological versus social influences on personality, and uniqueness versus similarities between people (Feist & Feist, 2009). Those who ascribe to the psychoanalytic and psychodynamic approach seem to suggest that unconscious minds are primarily responsible for behavioural patterns (Ryckman, 2008; Schultz & Schultz, 2016). The trait conceptualisation of personality posits that people

can be classified on a continuum of personality characteristics or factors (Costa & McCrae, 1992). Proponents of the biological approach contend that people are predisposed to behave in certain ways because of inherited characteristics (Eysenck, 1982). The humanistic approach points to the need for growth and self-acceptance as determinants of human personality (Maslow, 1970). The social-cognitive approach conceptualises personality as a product of the interaction between the person, the situation and the environment, where people engage in cognitive processes to influence the environment (Bandura, 1999b). The conceptualisation of personality according to Carl Jung is applicable to this study and will be critically evaluated in the next section.

The word personality is derived from the Latin word *persona* which means “mask” (Feist & Feist, 2009). From the preceding paragraph, it has been seen that personality theories are as diverse as their proponents. Despite this diversity, Feist and Feist (2009) attempt to define personality as a pattern of relatively permanent traits and unique characteristics that facilitate consistency and individuality in behaviour. Burger (2014) defines personality as consistent patterns of behaviour and intrapersonal processes that originate within an individual. Burger’s (2014) definition seems to suggest that there should be consistency in behaviour which will result in individual differences. The intrapersonal processes according to Burger (2014) refer to the emotions, motivations, and cognitions that occur within people and affect their behaviour and actions. In line with the cognitive-social learning paradigm, Feist and Feist (2009) point out that permanent traits constituting personality contribute to individual differences, behavioural consistency over time, and stability in behaviour across situations. The next section outlines the history and development of personality theory.

4.2 THEORIES OF PERSONALITY

This section discusses the development of personality specifically focusing on the psychodynamic, humanistic, dispositional, and social-cognitive theories of personality.

4.2.1 Psychodynamic theories

In this section the psychodynamic theories of personality represented by Freud, Jung, Erikson, Sullivan, Fromm, Horney, and Adler are discussed (Feist & Feist, 2009).

4.2.1.1 Sigmund Freud's psychoanalytic theory

The psychodynamic conceptualisation of personality can be credited to Sigmund Freud, who is generally referred to as the father of psychoanalysis (Feist & Feist, 2009; Schultz & Schultz, 2016). The heart of Freud's theory is the assertion that people are motivated by drives that they do not have control over (Ryckman, 2008). To this end, psychoanalysis postulates that the mental life is divided into two levels, that is, the conscious and the unconscious (Freud, 1923a). Freud (1923a) further posits that the unconscious is divided into two, the preconscious and the unconscious. The unconscious contains elements, drives, urges or instincts that individuals may not be aware of. The preconscious contains elements that are not conscious to our minds only becoming readily conscious with some difficulty. The conscious represents mental elements that people are aware of at any given moment in time but it does not play a part in Freud's psychoanalytic theory of personality (Burger, 2014; Feist & Feist, 2009; Ryckman, 2008). Freud (1923b) argues that personality is a dynamic component as it is motivated by the drives of sex and aggression. He further argues that the way people respond to sex stimuli or sex drives and the way they control their aggression play a part in moulding human personality. Freud (1923b) further posits that the drive for sex and the drive for aggression and their interaction with the areas of the mind (id, ego, and superego) may lead to anxiety if not managed well. In dealing with this anxiety, Freud (1923a) argues that people engage in defence mechanisms. These defence mechanisms are a way of directing libidinal focus to non-threatening or non-anxiety provoking areas and include repression, reaction formation, displacement, fixation, regression, projection, introjection and sublimation. According to Freud (1923a), the way people employ defence mechanisms forms a pattern of behaviour that becomes one's personality.

4.2.1.2 Adler and individual psychology

According to Taylor (2009), Adler opposed the psychoanalysis premise that human behaviour is mainly influenced by unconscious drives. He proposed a counter-argument that personality is mainly driven by social influences, suggesting that people are largely responsible for their actions and behaviour (Feist & Feist, 2009). Adler's (1925) conceptualisation of humanity is futuristic. He argues that present behaviour is shaped primarily by people's views of the future. He also contends that people are conscious and aware of their purpose and reason for behaviour. For Adler (1925), people are born weak and therefore feel inferior and this calls for dependency upon other people. Because of this perceived inferiority, they seek or feel a sense of unity with others. According to Feist and Feist (2009), this sense of unity they seek is called social interest and brings a standard of health to individuals.

According to individual psychology, people are goal-directed (Feist & Feist, 2009). In this regard, behaviour and personality are shaped by the need to strive for success, and by people's subjective perceptions rather than by unconscious drives (Taylor, 2009). For Adler, the way people seek social interest and the need to strive for success brings about the unified person and leads to a consistent pattern of behaviour (Feist & Feist, 2009). This behaviour becomes one's style of life. The self-consistent personality structure therefore develops into a person's style of life and this style of life is modelled by people's creative power. In addition, the self-consistent personality means that each individual is unique and indivisible, and this results in a consistent personality (Feist & Feist, 2009). Like psychoanalysis, Ryckman (2008) argues that Adler's individual psychology also may not be fully applied to occupational settings.

4.2.1.3 Carl Jung and analytical psychology

Carl Jung's analytical psychology, which thematically fits well into the analytical paradigm, makes a departure from Freud in that the mind or psyche operates at a conscious level, and also that the unconscious level is not perceptible at individual levels as it springs from the distant past of human existence (Burger, 2014; Feist & Feist, 2009; Taylor, 2009). Jung called this phenomenon the collective unconscious (Jung, 1939). For Jung (1939), the psyche operates at four levels, that is, the conscious, the personal unconscious, the collective unconscious, and archetypes. Conscious images are the ones that the individual can easily sense. Jung saw the unconscious being of little value for him and maintained that the ego is only the centre of consciousness and not personality (Taylor, 2010). Jung (1959) argued that the self is the centre of personality and is mostly unconscious. The personal unconscious consists of the repressed or subliminal perceived experiences of a particular individual. The personal unconscious is therefore unique to each individual. The collective unconscious, Jung (1937) argues, contains psychic potential passed through generations and therefore influences thoughts, emotions, and actions.

The collective unconscious refers to the innate human tendency to react to particular situations in a particular way whenever their experience stimulates a biologically inherited response (Feist & Feist, 2009). According to Jung, this shapes consistency in behaviour and therefore forms part of the individual personality (Ryckman, 2008). For Jung, the repetition of situational experiences develops content which emerges as autonomous archetypes (Feist & Feist, 2009). These archetypes are ancient images deriving from the collective unconscious. The archetypes are different from instincts in that the latter represents something universal for

particular species, while archetypes are biological and originate through the repeated experiences of early ancestors, although both influence personality (Feist & Feist, 2009; Taylor, 2010).

Archetypes are not directly represented but exist in many modes such as fantasies, dreams and so forth when activated (Jung, 1937). Jung (1937) identified archetypes which define the individual personality, and these include the persona, shadow, anima, animus, great mother, wise old man, and hero. These are described in more details later in this chapter. Jung postulated that an individual must be able to balance all the archetypes to come up with a concept he referred to as the self and this balance ensures the attainment of a healthy personality (Burger, 2014). According to Feist and Feist (2009), Jung proposed that for people to reach self-realisation, they must be able to balance opposing forces, for example conscious and unconscious, anima and animus, and so on. As Taylor (2010) notes, Jung maintained that too much reliance on one extreme may lead to maladaptive behaviour. The issue of balancing opposing forces gave birth to the psychological types theory, which in turn provided the basis for the personality types theory of Myers (1987). The personality types theory is the theoretical framework applicable to the present study.

Jung's (1937) theory suggests that personality is a product of both causality and teleology in that people may be as influenced by past events as often as they would strive to achieve and therefore are influenced by teleological goals (Feist & Feist, 2009). Jung (1937) also defined personality in terms of regression versus progression (Feist & Feist, 2009), arguing that a healthy personality is achieved if one balances regression (adaption of personality to the inner world) and progression (adaption of personality to the outside world). The concept of self, the archetypes and the dynamics of personality, as well as the principle of opposites, led to Jung's realisation of the psychological types which grow out of a union of two attitudes (extroversion and introversion) and four functions (thinking, feeling, intuiting and sensing) (Burger, 2014; Feist & Feist, 2009). As will be seen later, this conception led to the development of the personality types theory of Myers and Briggs (Myers, 1987) which is applicable to this study. According to analytical psychology, a healthy and adaptive personality should, therefore, be able to find a balance between the attitudes and the functions (Burger, 2014; Feist & Feist, 2009; Ryckman, 2008). The way people employ the attitudes and functions produces certain psychological types which form that person's personality makeup. Jung's analytical psychology, and specifically the psychological types theory, has contributed immensely to the field of personnel psychology (Kirby & Myers, 2000). The personality types theory of Myers and Briggs (Myers, 1987) is an offshoot of Jung's psychological types theory. The theory has

fared well regarding its application in occupational settings (Leary et al., 2009) and will be discussed in more detail later as it is relevant to this study.

4.2.1.4 Karen Horney's psychoanalytic social theory

Psychoanalytic social theory emphasises the role of society rather than biological tendencies in shaping individual personality (Feist & Feist, 2009). According to Horney (1937), social and cultural experiences, especially in childhood, are responsible for the moulding of human personality. People who do not have their needs resolved or satisfied in their childhood may suffer from what Horney (1950) called basic anxiety in adulthood or old age. Horney (1950) proposed that for people to combat such anxiety, they should move towards people, away from people, or against people. According to Horney (1950), moving towards people to protect oneself against helplessness involves striving for approval or affection from others or seeking a powerful partner who can take control of one's life. Moving against people involves maintaining a tough and ruthless stance towards others. Such people will seldom accept mistakes, but rather seek to be powerful and superior. Some who move away from people may see the need to maintain privacy, independence or self-sufficiency because they find mixing with others intolerable. These ways of fighting basic anxiety become people's way of life and therefore create a unique personality (Horney, 1950).

Owing to the importance of culture, it is not surprising that Horney's theory depicts humanity as having a free choice rather than being influenced by unconscious drives (Feist & Feist, 2009). Horney can be credited with writing very clearly about the concept of neurosis and her theory is applicable in clinical settings (Burger, 2014). Feist and Feist (2009), however, point out that the theory falls short in terms of its ability to generate research and as well as being falsifiable and therefore could be difficult to apply in occupational settings.

4.2.1.5 Eric Fromm and humanistic psychoanalysis

According to Fromm (1956), human personality is influenced by the desire to satisfy existential needs. These existential needs, as Burger (2014) notes, have emerged during the evolution of human culture when people try to understand the reason for their existence. Fromm (1956) talks about people seeking to fulfil the need for relatedness, rootedness, transcendence, a sense of idealism, and a sense of orientation. According to Fromm (1962), a healthy person with a well-developed personality should have all these needs developed or satisfied or have positive components of the needs.

According to Feist and Feist (2009), Fromm made a significant contribution by making a distinction between human and animals. He emphasised the free choice that people have in defining their destiny (Taylor, 2010). In addition, he argued that people are driven by teleological needs and are self-aware of their actions (Feist & Feist, 2009). Feist and Feist (2009) add that Fromm's theory distinguishes itself from others in that it views social influence, culture, society and history as the drivers of human personality. This social environment fits well within the cognitive-social learning paradigm. Horney (1950) also emphasised individuality over similarity, which also fits the cognitive-affective process of consistency, variability, and organisation as enshrined in the cognitive-social learning paradigm. However, the theory is more applicable to clinical than occupational settings (Burger, 2014).

4.2.1.6 Sullivan's interpersonal theory

Sullivan argued that personality development is a function of interpersonal experiences (Sullivan, 1953) and maintained that an unhealthy personality is rooted in the skewness of these experiences. He proposed that people have two aspects to their experiences, namely, tensions describing the potential for action and energy transformation describing actions or behaviours. Sullivan (1956) proposed that there are two kinds of tension and these are represented in needs and anxiety. Needs facilitate interpersonal development, while anxiety interferes with needs satisfaction. Sullivan (1956) notes that energy transformation becomes organised to show typical behavioural patterns, which he refers to as dynamism. Such dynamism includes malevolence (which is a feeling of living in enemy country), intimacy (the need for interpersonal relationships with people of equal status), and lust (impersonal sexual drives) (Feist & Feist, 2009). His theory is therefore high on social influence on personality. For Sullivan (1956), personality development is influenced by interpersonal experiences that develop in line with developmental stages, with preadolescence as the crucial stage for interpersonal development (Feist & Feist, 2009). Feist and Feist (2009) point out that although Sullivan's work may be more applicable to clinical settings than to occupational settings, it lacks the ability to generate research because it appears to be difficult to falsify.

4.2.1.7 Erikson's psychosocial theory

Eric Erikson extended Freud's developmental theory into adulthood and emphasised the role of society in shaping personality (Feist & Feist, 2009). He argued that human personality is driven by the three egos, that is, body ego, real ego and ego identity (Erikson, 1963). Erikson talks about the epigenetic principle which he applies to his eight developmental stages. The principle stipulates that a growing person must resolve the problems of the earlier

developmental stages if they are to achieve a healthy personality in adulthood. Like Jung, he viewed personality development on a continuum of opposites. However, Erikson failed to develop a comprehensive mechanism to test his theory, making it difficult to apply to occupational settings.

4.2.2 Humanistic theories

Humanistic theories can be summarised by the works of Abraham Maslow, Michele May and Carl Rogers (Feist & Feist, 2009). These theories set themselves apart from psychodynamic theories in that they view human beings as positive and motivated by the need to grow and realise their fullest potential which is sometimes referred to as self-actualisation (Maslow, 1970). Accordingly, humanistic theories portray human beings as active, having the freedom to engage in behaviour that positively determines their purpose (Burger, 2014; Feist & Feist, 2009). The theories depict humans as dignified beings who should be studied in their integrated whole. This is because the humanistic conceptualisation of personality subscribes to the holistic approach to human existence and places particular emphasis on freedom, values, human potential, the meaning of life, personal responsibility, and self-actualisation (Burger, 2014). The humanistic paradigm has not been tested in selection contexts per se, though it has been applied to other areas of personnel psychology which include motivation and job performance (Feist & Feist, 2009). The humanistic paradigm is thematically applicable to the concept of job performance.

4.2.3 Social learning theories

The social learning theory posits that humans can learn a diversity of behaviour through a variety of situations (Bandura, 1977). Bandura (1999a) proposes that people learn by observing others through the process of modelling. This kind of learning, Bandura (1999a) argues, not only involves adding and subtracting from observed behaviours but also the ability to generalise behaviour from one situation to another. At the centre of the social-cognitive theory of personality is triadic reciprocal causation, which stipulates that human action and personality are products of the interaction between the environment, the person and the behaviour (Bandura, 2002). In line with the cognitive-social learning paradigm, as the person interacts with the environment, they build up a pattern of behaviour that is variable (from situation to situation) enough to be consistent in making up a coherent individual personality.

When he referred to the person in the triadic approach, Bandura (1999b) meant that elements such as cognition and memory and other psychological elements assist people to adapt,

influence their society, as well as restructure their environment. According to Feist and Feist (2009), cognition will also allow people to select which environments to attend to and the value they place on the events in them, as well as the organisation of the events for future use. Thus, cognition may be influenced by the environment itself. According to Bandura (2002), the three elements (person, behaviour and situation) may vary between situations, depending on the triadic factor important at a particular point. Bandura (1999b), however, acknowledged that cognition is the strongest factor in the triad and in determining performance. Social learning theory offers the basis upon which personality theories should conceive personality by looking at the interaction of various determinants. However, it does not offer comprehensive measures that would render it applicable to occupational settings (Leary et al., 2009).

4.2.4 Dispositional theories

Dispositional theories refer to personality theories that define personality in terms of disposition or traits (Burger, 2014).

4.2.4.1 Allport's conceptualisation of personality

Feist and Feist (2009) regard Gordon Allport as an advocate of individuality. He used the morphogenetic approach in studying human personality. Allport (1937) defines personality as the organisation of individual psychophysical systems that determines their unique adjustment to their environment. This definition places more emphasis on uniqueness between behaviour and thought. He argued that most people are conscious of their actions. This means that in line with the cognitive-social learning paradigm, human beings are cognitive. Allport (1937) posited that human personality is driven by conscious motivation and as a result, he described the structure of personality in terms of dispositions. He distinguishes between individual and common traits and provides a basis upon which society can compare one another.

Allport (1961) identified three levels of dispositions. These are the cardinal disposition, which represents an individual's most outstanding dispositions that the person almost always exhibits when certain situations are activated. Central dispositions refer to a few (perhaps five to ten) outstanding dispositions in a person's life. Secondary dispositions refer to a far greater number and array of dispositions that are less conspicuous in the way the person behaves. Allport (1961) also proposed the concepts of motivational and stylistic disposition. Motivational dispositions are responsible for initiating action and stylistic dispositions guide the action in a style that assists in achieving the motive of the initiated action. Unlike the psychodynamic conceptualisation of personality, Allport focused on growth (Burger, 2014). He argued that

people are motivated by the desire to grow rather than the need to reduce pain or gain pleasure. As a result, he projected an optimistic image of humanity, emphasised uniqueness and teleology, and argued that human personality needs to be viewed in terms of dispositions that distinguish people from one another (Feist & Feist, 2009). The dispositional conception of personality laid the foundation for trait factor theory, which is discussed next.

4.2.4.2 Trait-factor theories

The trait factor theory of personality can be credited to Eysenck (Burger, 2014). Eysenck used the deductive approach to come up with three personality factors using the method of factor analysis and these factors are introversion, stability and psychoticism (Feist & Feist, 2009). Cattell (1949) used the inductive approach to come up with common traits, temperaments and abilities. Cattell (1949) reduced his conceptualisation of personality to 16 traits which are frequently studied in normal personality (Burger, 2014). It is important to note that the original instruments were narrow, for example the Maudsley Personality Inventory (MPI) (Eysenck, 1959), which assessed only extraversion and introversion. In 1975, the Eysenck Personality Questionnaire (EPQ) was devised, which included extroversion, introversion and psychoticism (Feist & Feist, 2009). This tool was used to assess personality in order to predict behaviour, creativity, success and the like (Feist & Feist, 2009).

On the basis of their research, Costa and McCrae (1992) developed the five-factor model of personality, which conceptualises personality in terms of introversion/extraversion, neuroticism, openness to experience, conscientiousness, and dominance, factors which they argue have biological bases (Costa & McCrae, 1992; McCrae & Costa, 2003). The factor theory of personality and its research, culminating in the search for the five-factor conceptualisation, has received quite considerable research in occupational settings (Joseph & Newman, 2010; O'Boyle et al., 2011). Trait-factor theories have over the years developed into a model of personality called the trait factor model, which is widely applicable to occupational testing and in particular to personnel selection and development (Joseph & Newman, 2010; O'Boyle et al., 2011). Thus, the next section discusses the trait model of personality in detail.

4.2.4.3 The trait model of personality and its relationship with job performance

Despite long and convoluted research into the personality theory, the trait model of personality conceptualises personality in terms of five factors, or the Big Five (Costa & McCrae, 1992.) These factors are extraversion, neuroticism, openness, agreeableness, and

conscientiousness. The factors are bipolar and follow more or less bell-shaped distribution. As a result, and unlike the type conceptualisation, personality can be described on a continuum running across the bipolar factors (Costa & McCrae, 1992).

The five factors are explained below in line with Costa and McCrae (1992):

Neuroticism distinguishes anxious from emotionally stable individuals. People high on neuroticism are likely to be anxious and easily panic in the face of potential obstacles. On the other hand, individuals low on neuroticism are emotionally stable.

People who are extroverted are likely to value social interaction and participation. They are more affable, jovial and can easily make new friends. They would prefer to be in the company of others than doing their own things.

Openness to experience distinguishes variety seekers from those that prefer traditional ways of approaching the world. People with less openness to experience are likely to prefer to approach life and work in a traditional manner. On the other hand, people with high openness to experience tend to seek variety in aspects of their lives. As a result, they tend to be imaginative and creative and enjoy a flexible lifestyle.

Agreeableness distinguishes more assertive and ruthless people from soft-hearted and conforming ones. People who are agreeable tend to be less assertive and therefore likely to defer to other people's views. People high on agreeableness tend to be assertive and dominant.

Conscientiousness describes the level of self-discipline that individuals are likely to exhibit. People high on conscientiousness are like to be self-disciplined and organised. They are likely to be focused, hardworking, punctual and persevering. Those low on conscientiousness tend to be disorganised, tending to present low self-discipline. People low on self-discipline prefer a flexible approach to life and work.

The trait model of personality has received acceptance in occupational testing and has been researched quite extensively (Joseph & Newman, 2010; O'Boyle et al., 2011). In their meta-analysis which tested the utility of the Big Five in predicting job performance, Joseph and Newman (2010) found that conscientiousness and agreeableness wields more explanatory power on the variance in job performance than the other three factors. The Big Five factors were found to add considerable incremental validity over and above cognitive intelligence than

ability emotional intelligence (O'Boyle et al., 2011). Personality as conceptualised by the five-factor model also seems to be related more closely to trait and mixed models of emotional intelligence than to ability emotional intelligence (O'Boyle et al., 2011). Conscientiousness has been found to be related to cognitive intelligence at a significant, albeit low level (Joseph & Newman, 2010). It is also interesting to note that Furnham et al. (2007) found that openness was also consistently and significantly associated with both fluid and crystallised intelligence at $r = .09$ to $r = .12$. From the foregoing, it is apparent that the five-factor model has received considerable research in occupational settings. The next section discusses the psychological types theory.

4.2.5 The psychological types theory

The psychological types theory, which forms part of the analytical paradigm, can be credited to the works of Jung (1921). This theory stipulates that a healthy personality is a product of the balance between opposing forces in the personality. The psychological types theory emphasises the role of the collective unconscious, which, as mentioned earlier, refers to the innate human tendency to react to particular situations in a particular way whenever their experience stimulates a biologically inherited response (Feist & Feist, 2009). According to Jung (1921), this shapes consistency in behaviour and therefore forms part of individual personality. Jung (1921) adds that the repetition of situational experiences develops content and emerges as autonomous archetypes. He defines archetypes as ancient images deriving from the collective unconscious

Jung (1921) identified four archetypes, which define individual personality. These are the persona, which constitutes a balance of the individual's public image. The shadow contains repressions of the darkness archetype, which people must confront to develop a healthy personality. The anima and animus represent the feminine and masculine qualities in men and women, respectively. Jung also identified the great mother and the wise old man archetypes. The great mother archetype represents two opposites, caring and nurturing as opposed to the destruction of the offspring by their mother. The wise old man archetype stands for wisdom and meaning. The hero archetype represents victory over the forces of darkness. A healthy personality may be viewed as one that finds a balance between wisdom and meaning. This balance ensures the attainment of a healthy personality. For people to reach self-realisation and achieve a balanced personality, they must therefore be able to balance opposing forces, for example the conscious and unconscious, anima and animus, and so on. According to Jung (1921), too much reliance on one extreme may lead to maladaptive behaviour. The concept of self, the archetypes, the dynamics of personality, and particularly the principle of opposites

led to Jung's (1923) postulation and the realisation of psychological types, which grow out of a union of two attitudinal orientations (extroversion and introversion) and four psychological functions (thinking, feeling, intuiting and sensing).

4.2.5.1 The attitudes

According to Feist and Feist (2009), an attitude is a person's predisposition to act in a certain characteristic way. These authors posit that people have both introverted and extraverted attitudes, though one may be dominant and the other unconscious, for example if an individual is an extrovert, the introversion attitude may be unconscious. Extraverts direct their psychic energy to the outside world and relate well to it, while introverts turn their psychic energy inwardly and therefore are orientated to subjective attitudes (Jung, 1923). For Jung (1923) a health personality is achieved by maintaining a balance between the two.

4.2.5.2 The functions

In addition to the two attitudes, Jung (1921, 1923) proposed four psychological functions. He points out that the two attitudes may combine with the four psychological functions to produce eight orientations or types. These psychological functions are described below.

(a) Thinking

According to Feist and Feist (2009) thinking refers to logical intellectual activity that produces ideas. The thinking type of person can be either extraverted or introverted, depending on the basic attitudinal orientation. According to Feist and Feist (2009), extraverted thinking involves reliance on objective and concrete facts to arrive at decisions. Accountants and engineers may fall into this category. Introverted thinking involves thinking that is subjective to internal meaning. Professions like philosophers fit well into this description (Feist & Feist, 2009). Extreme introversion may be unproductive as it may lead to mystical thinking which may be useless to others (Jung, 1923).

(b) Feeling

Feeling refers to the process by which people evaluate events and ideas (Jung, 1971). Extraverted feeling involves people who use objective data to make evaluations as opposed to being guided by subjective opinions. They adhere more to external values and widely accepted standards of judgement. Feist and Feist (2009) give examples of politicians and

business people as occupations that may fall into this category. Introverted feeling types base their judgements on subjective perceptions.

(c) Sensing

Jung (1921) defined sensing as the reception of physical stimuli and their transmission to perceptual consciousness. Sensing assists in the individual perception of sensory impulses. Extraverted sensing types perceive external stimuli objectively such that they perceive the stimuli to more closely resemble reality. According to Feist and Feist (2009), proof-readers, wine testers and painters may fall into this category. On the other hand, introverted sensing types are influenced by their subjective interpretations of their sensations. Portrait artists and sculptors may fall into this category. Sensing taken to extremes may lead to psychosis (Jung, 1971).

(d) Intuiting

Intuiting refers to perceptions that go beyond consciousness (Feist & Feist, 2009). Extraverted intuiters are oriented towards facts in the external world and perceive sensation subliminally. It is important to note that some sensations may interfere with intuition and these often suppress sensations that become guided by gut feeling contrary to sensory data. On the other hand, introverted intuiters are guided by unconscious and subjective perceptions. They may be motivated by things they cannot comprehend. According to Jung (1923), prophets and religious fanatics fall into this category. Jung (1923) used the attitudes and functions to define personality, postulating that in a healthy personality or person all the functions would be highly developed.

It is interesting to note that the psychological types theory gave birth to the personality type theory of Myers and Briggs (Myers, 1987). The next section discusses the personality type theory.

4.2.6 The personality types theory

Myers and Briggs (Myers, 1987) extended Jung's theory based on the existence of an auxiliary function, the outcome of perception and judgement, and the auxiliary's balancing role in extraversion and introversion (Kirby & Myers, 2000). This assisted in building on Jung's theory, especially the addition of a description of the auxiliary function that supported the dominant function in each personality type.

Jung's two attitudes and four mental functions are similar to Myers and Briggs' (Myers, 1987) conceptualisation and, hence, they will not be discussed again here. Rather the functions of judging and perceiving will be discussed. According to Kirby and Myers (2000), judging relates to planned processes and regulation involving more often than not a highly structured adherence to plans. Perceivers are usually flexible and spontaneous, seeking to experience and understand phenomena rather than to control them. They are generally resourceful and more interested in their surroundings than in their intentions (Feist & Feist, 2009). Thus, the addition of the Judging-Perceiving function means that the personality type theory consists of two attitudes and six psychological functions (Myers, 1987).

According to the personality type theory, the attitudes and functions can be classified into four dichotomies describing four outcomes (Kirby & Myers, 2000). Individuals are therefore classified on dichotomous dimensions as extraverted (E) versus introverted (I) (how they prefer to focus their attention or where they get their energy), sensing (S) versus intuitive (N) (how they prefer to take information), thinking (T) versus feeling (F) (how they make decisions), and judging (J) versus perceiving (P) (how they deal with their outer world). These four dichotomies are summarised in Table 4.1.

Table 4.1

The MBTI Preferences

Where do you prefer to place your attention? Where do you get your energy? The E-I dichotomy	
<p>Extraversion People who prefer extraversion like to focus on the outer world of people and activity. They direct their energy and attention outwards and receive energy from interacting with people and from taking action.</p> <p><i>Characteristics associated with people who prefer extraversion:</i></p> <ul style="list-style-type: none"> • Attuned to external environment • Prefer to communicate by talking • Work out ideas by talking them through • Learn best through discussing • Have broad interests • Sociable and expressive • Readily take initiative in the work and relationships. 	<p>Introversion People who prefer introversion like to focus on their own inner world of ideas and experiences. They direct their energy and attention inwards and receive energy from reflecting on their thoughts, memories and feelings.</p> <p><i>Characteristics associated with people who prefer introversion:</i></p> <ul style="list-style-type: none"> • Drawn to their inner world • Prefer to communicate in writing • Work out ideas by reflecting on them • Learn best by reflection, mental "practice" • Focus in depth on their interests • Private and contained • Take initiative when the situation or issue is very important to them

How do you prefer to take in information? The S-N dichotomy	
<p>Sensing</p> <p>People who prefer sensing like to take in information that is real and tangible - what is actually happening. They are observant about the details of what is going on around them and are especially attuned to practical realities.</p> <p><i>Characteristics associated with people who prefer sensing:</i></p> <ul style="list-style-type: none"> • Oriented to present realities • Factual and concrete • Focus on what is real and actual • Observe and remember details • Carefully and thoroughly oriented towards conclusions • Understand ideas and theories through practical applications • Trust experience 	<p>Intuition</p> <p>People who prefer intuition like to take in information by seeing the big picture, focusing on relationships and connections between facts. They want to grasp patterns and are especially attuned to seeing new possibilities.</p> <p><i>Characteristics associated with people who prefer intuition:</i></p> <ul style="list-style-type: none"> • Oriented to future possibilities • Imaginative and verbally creative • Focus on the patterns and meanings in data • Remember details when they relate to a pattern • Move quickly to conclusions, follow hunches • Want to clarify ideas and theories before putting them into practice • Trust inspiration
How do you make decisions? The T-F dichotomy	
<p>Thinking</p> <p>People who prefer to use thinking in decision-making like to look at the logical consequences of a choice or action. They want to remove themselves mentally from a situation to examine the pros and cons objectively. They are energised by evaluating and analysing to identify what's wrong with something so they can solve the problem. The goal is to find a standard or principle that will apply in all similar situations.</p> <p><i>Characteristics associated with people who prefer thinking:</i></p> <ul style="list-style-type: none"> • Analytical • Use cause-and-effect reasoning • Solve problems with logic • Strive for an objective standard of truth • Reasonable • Can be tough-minded • Fair – want everyone treated equally 	<p>Feeling</p> <p>People who prefer to use feeling in decision-making like to consider what is important to them and to others involved. They mentally place themselves in the situation to identify with everyone so that they make decisions based on their values about showing respect for people. They are energised by appreciating and supporting others and look for qualities to praise. Their goal is to create harmony and treat each person as a unique individual.</p> <p><i>Characteristics associated with people who prefer feeling:</i></p> <ul style="list-style-type: none"> • Empathetic • Guided by personal values • Assess impacts of decisions on people • Strive for harmony and positive interactions • Compassionate • May appear “tender-hearted” • Fair – want everyone treated as an individual
How do you deal with the outer world? The J-P dichotomy	

Judging	Perceiving
<p>People who prefer to use their judging process in the outer world like to live in a planned, orderly way, seeking to regulate and manage their lives. They want to make decisions, come to closure and move on. Their lives tend to be structured and organised and they tend to have things settled. Sticking to the plan and schedule is very important to them and they are energised by getting things done.</p>	<p>People who prefer to see their perceiving process in the outer world like to live in a flexible, spontaneous way, seeking to experience and understand life, rather than control it. Detailed plans and final decisions feel confining to them; they prefer to stay open to new information and last-minute options. They are energised by their resourcefulness in adapting to the demands of the moment.</p>
<p><i>Characteristics associated with people who prefer judging:</i></p> <ul style="list-style-type: none"> • Scheduled • Organise their lives • Systematic • Methodical • Make short and long-term plans • Like to have things decided • Try to avoid last-minute stresses 	<p><i>Characteristics associated with people who prefer perceiving:</i></p> <ul style="list-style-type: none"> • Spontaneous • Flexible • Casual • Open-ended • Adapt, change course • Like things loose and open to change • Feel energised by last-minute pressures

Source: Kirby and Myers (2000, pp. 9–10)

The addition of the Judging-Perceiving scale assisted in reformulating or refining the psychological types theory to describe sixteen personality preferences (Myers, McCaulley, Quenk, & Hammer, 1998). Combinations of the four preferences therefore determine 16 personality types which describe personality in terms of a four-letter code (for example, ENTJ). The personality types define a specific set of behavioural tendencies or preferences that reflect differences in attitudes and orientation, as well as decision-making styles (Kirby & Myers, 2000). The 16 personality types and their characteristic definitions are summarised in Table 4.2.

Table 4.2

Characteristics Frequently Associated with Each Personality Type

	Sensing Types		Intuitive Types	
Introverts	ISTJ Quiet, serious, earn success by thoroughness and dependability. Practical, matter-of-fact, realistic, and responsible. Decide logically what should be done and work toward it steadily, regardless of distractions. Take pleasure in making everything orderly and organized—their work, their home, their life. Value traditions and loyalty.	ISFJ Quiet, friendly, responsible, and conscientious. Committed and steady in meeting their obligations. Thorough, painstaking, and accurate. Loyal, considerate, notice and remember specifics about people who are important to them, concerned with how others feel. Strive to create an orderly and harmonious environment at work and at home.	INFJ Seek meaning and connection in ideas, relationships, and material possessions. Want to understand what motivates people and are insightful about others. Conscientious and committed to their firm values. Develop a clear vision about how best to serve the common good. Organized and decisive in implementing their vision.	INTJ Have original minds and great drive for implementing their ideas and achieving their goals. Quickly see patterns in external events and develop long-range explanatory perspectives. When committed, organize a job and carry it through. Sceptical and independent, have high standards of competence and performance—for themselves and others.
	ISTP Tolerant and flexible, quiet observers until a problem appears, then act quickly to find workable solutions. Analyse what makes things work and readily get through large amounts of data to isolate the core of practical problems. Interested in cause and effect, organize facts using logical principles, value efficiency.	ISFP Quiet, friendly, sensitive, and kind. Enjoy the present moment, what's going on around them. Like to have their own space and to work within their own time frame. Loyal and committed to their values and to people who are important to them. Dislike disagreements and conflicts, do not force their opinions or values on others	INFP Idealistic, loyal to their values and to people who are important to them. Want an external life that is congruent with their values. Curious, quick to see possibilities, can be catalysts for implementing ideas. Seek to understand people and to help them fulfil their potential. Adaptable, flexible, and accepting unless a value is threatened.	INTP Seek to develop logical explanations for everything that interests them. Theoretical and abstract, interested more in ideas than in social interaction. Quiet, contained, flexible, and adaptable. Have unusual ability to focus in depth to solve problems in their area of interest. Sceptical, sometimes critical, always analytical.
	ESTP Flexible and tolerant, they take a pragmatic approach focused on immediate results. Theories and conceptual explanations bore them – they want to act energetically to solve the problem. Focus on the here-and-now, spontaneous, enjoy each moment that they can be active with others. Enjoy material comfort and style. Learn best through doing.	ESFP Outgoing, friendly and accepting. Exuberant lovers of life, people and material comforts. Enjoy working with others to make things happen. Bring common sense and a realistic approach to their work and make work fun. Flexible and spontaneous, adapt readily to new people and environments. Learn best by trying a new skill with other people.	ENFP Warmly enthusiastic and imaginative. See life as full of possibilities. Make connections between events and information very quickly, and confidently proceed based on the patterns they see. Want a lot of information from others and readily give appreciation and support. Spontaneous and flexible, often rely on their ability to improvise and their verbal fluency.	ENTP Quick, ingenious, stimulating, alert and outspoken. Resourceful in solving new and challenging problems. Adept at generating conceptual possibilities and then analysing them strategically. Good at reading other people. Bored by routine. Will seldom do the same thing the same way, apt to turn to one new interest after another.
	ESTJ Practical, realistic, matter-of-fact. Decisive,	ESFJ Warm-hearted, conscientious, and	ENFJ Warm, empathetic, responsive, and	ENTJ Frank, decisive, assume leadership readily.

	Sensing Types		Intuitive Types	
	quickly move to implement decisions. Organize projects and people to get things done, focus on getting results in the most efficient way possible. Take care of routine details. Have a clear set of logical standards, systematically follow them and want others to also. Forceful in implementing their plans.	cooperative. Want harmony in their environment, work with determination to establish it. Like to work with others to complete tasks accurately and on time. Loyal, follow through even in small matters. Notice what others need in their day-by-day lives and try to provide it. Want to be appreciated for who they are and for what they contribute.	responsible. Highly attuned to the emotions, needs, and motivations of others. Find potential in everyone, want to help others fulfil their potential. May act as catalysts for individual and group growth. Loyal, responsive to praise and criticism. Sociable, facilitate others in a group, and provide inspiring leadership.	Quickly see illogical and inefficient procedures and policies, develop and implement comprehensive systems to solve organizational problems. Enjoy long-term planning and goal setting. Usually well informed, well read, enjoy expanding their knowledge and passing it on to others. Forceful in presenting their ideas.

Source: Kirby and Myers (2000, p. 13)

In terms of distribution of the dominant personality types, the ISTJ, ESTJ, INTJ, and ENTJ were the top four personality types among management employees in the United States of America (Sample, 2017). In another study, the most frequent personality types in the United States of America were the ISTJ, ISFJ, ESFJ, and ESFP, while in a certain global consulting firm, the ISTJ and ESTJ were the most common personality types (Daisley, 2011). In a study on the relationship between personality preferences, self-esteem and emotional competence in South Africa, Coetzee (2005) found the ESTJ and the ISTJ dominant personality types to be over-represented. From the foregoing research finding, it appears that the ISTJ seems to be a common dominant personality type. According Kirby and Myers (2000), the ISTJ characterises organised and serious people who value loyalty and earn their success through responsibility, dependability and perseverance regardless of distractions. Since the ISTJ personality type seems to be pervasive across continents, this has implications both personnel selection and dealing development and motivational issues of employees post selection.

4.2.6.1 The dynamics of personality

McCaulley and Martin (1995) state that every individual uses all four mental functions. They also note that, as individuals use them, each mental function has its own sphere of activity. Myers (1987) argues that balanced personality development of all the four dichotomies would lead to an undifferentiated personality. This is because Jung's (1921, 1971) theory assumes that one of the four dichotomies emerges as the leading or dominant process and this gives balance and direction to the personality (McCaulley & Martin, 1995).

Myers (1987) used Jung's psychological types theory to distinguish between dominant and auxiliary functions. Dominant functions are those that the individual prefers to use frequently and therefore devotes their attention to most of the time. Thus, the dominant function has four outcomes. These describe the one's preferred way of perception (sensing or intuition) or their preferred way of judgement (thinking or feeling). It is also interesting to note that individuals use their dominant function in conjunction with their preferred attitude. For example, introverted thinking types would prefer internal order and logical consistency in their ideas. On the other hand, extraverted thinking types would seek to bring logical order to the world around them.

Myers and Briggs also developed Jung's (1971) theory in terms of the auxiliary functions (Myers, 1987). From Jung's theory, Myers and Briggs noticed that the auxiliary function is the opposite of the dominant function and always complements the dominant function (McCaulley & Martin, 1995). For example, if the dominant function is intuition, then the auxiliary function must be sensing. Myers et al. (1998) also mention that the auxiliary function will almost always operate with the less preferred attitude, which is either extraversion or introversion. Hence, if the dominant function is extraverted then the auxiliary function will be introverted and vice versa (Myers et al., 1998).

The last part of the interpretation of the four-coded type is the judging and perceiving dichotomy. These indicate one's preferred use of the judging function (thinking and feeling) or the perceiving function (sensing or intuition) regardless of whether extraversion or introversion is the dominant attitude.

One of the main instruments used to measure psychological type is the Myers Briggs Type Indicator (MBTI) (Myers & McCaulley, 1985) developed from the personality type theory of Myers and Briggs (Myers, 1987). This instrument has been used in occupational settings for personnel development and team functioning (Gilal et al., 2016), while Big Five theory has also been used in selection contexts. It is this researcher's view that if the MBTI is applicable to development and team functioning, its use in personnel selection contexts will assist in predicting the feasibility of development and team functioning for job applicants. This is why this model of personality was adopted in the present study.

4.3 RELATIONSHIP BETWEEN PERSONALITY TYPES AND JOB PERFORMANCE

Research seeking to investigate the relationship between personality types and job performance has somewhat been scant (Feist & Feist, 2009). Kosti et al. (2014) suggest that

the MBTI has had a significant influence in practice and has long been used for personality assessment in personnel selection. Capretz, Varona, and Raza's (2015) study on personality preferences among software professionals presents interesting findings. Their (Capretz et al., 2015) research links personality types to software task preferences for categories of software practitioners, such that a certain preference suits a certain category of software practitioners. This information is useful in a selection context where personality types can be used to predict personality preferences for software professionals, thus avoiding errors in personnel placement. Vincent et al. (2013) suggest that the MBTI's Intuition is associated with ego strength, which in turn is associated with leadership performance. Feist and Feist (2009) provide broad occupational categories in which psychological and personality types may predict job performance. Leary et al. (2009) point out that personality types have been tested in personnel development and group functioning areas. Although Carr, De la Garza, and Vorster (2002) found high judging, intuition and perceiving to predict job performance for engineers and project planners, more research is required to ascertain the true relationship between MBTI (Myers & McCaulley, 1985) personality types and job performance.

Despite criticism of the MBTI on psychometric grounds (McCrae & Costa, 1989), Sample (2017) contends that the MBTI has good psychometric properties when administered appropriately. According to Varvel, Adams, Pridie, & Ulloa, (2004), the MBTI is a useful tool for improving team performance. Varvel et al. (2004) also point out that the MBTI assists in improving communication, interdependence and trust for those who understand their personality types. The MBTI has also been found to improve the quality of decision-making and problem solving (Prince, 2015; Sample 2017). Commenting on the criticisms of the MBTI, Sample (2017) states that the MBTI has been researched extensively worldwide and there are MBTI short-forms that are not validated, available on the internet. Sample (2017) thus, urges practitioners to use only validated MBTI tools to get better utility in the occupational and organisational outcomes stated above. Against the background of research pointing to the utility of the MBTI in occupational settings, it is worthy to assess the fidelity of the MBTI in personnel selection contexts.

In terms of the relationship with other predictors, Higgs (2001) (using the Emotional Competence Inventory of Boyatzis and Goleman [2000]) found that there was a positive relationship between feeling, thinking and the emotional intelligence element of self-awareness. It is also interesting to note that although Perry and Ball (2005) found a significant relationship between intrapersonal and interpersonal intelligence and the MBTI, they found no significant relationship with trait emotional intelligence. This appears to indicate that personality types and trait emotional intelligence may be two distinct constructs. A study by

Virmozelova and Dimitrova (2013) revealed that sensing and introversion were negatively correlated with sharing emotions and empathy and optimism, while extraversion correlated positively with sharing emotions and empathy. In another old study, Johnson and Miller (2003) found that extraversion was positively significantly correlated with the total emotional intelligence score as measured by the Global Personality Inventory (Schmit, Kihm, & Robie, 2000), as well as the subscales of self-awareness, social skills, motivation and empathy. Johnson and Miller (2003) found a significant low to moderate negative correlation between MBTI intuition and the total Global Personality Inventory as well as on all the subscales. The observed negative and low relationship between the personality types and the rest of the Global Personality Inventory emotional intelligence scales suggest that trait emotional intelligence and MBTI conceptualisation of personality may be to a larger extent distinct constructs. It is therefore worth investigating the MBTI in personnel selection contexts as it may add incremental validity over and above other personnel selection methods .

Furnham, Dissou, Sloan, and Chamorro-Premuzic (2007) note that studies on the relationship between personality as measured by the MBTI and cognitive intelligence are very few. In this particular study, Furnham et al. (2007) demonstrate that personality as measured by the MBTI showed that intuition and perceiving scores were positively and significantly associated with both fluid and crystallised intelligence ability at $r = .38$. This seems to be consistent with earlier studies by Kaufman, McLean, and Lincoln (1996) in which intuitive individuals scored higher on general intelligence. An old study by Myers and McCaulley (1985) also seems to point in the same direction. Myers and McCaulley (1985) found intuitive individuals to have higher cognitive intelligence. One would therefore argue that if some personality types are related to some instruments measuring psychological constructs relevant for occupations, then it is worth testing the personality theory in occupational settings.

The next section provides a summary of personality theories.

4.4 SUMMARY OF PERSONALITY THEORIES

Different personality theorists define personality in terms of what they believe constitutes the concept. Psychodynamic theorists propose that personality is determined by history, and unconscious and conscious motives. Literature has also seen some of the post-Freudian theorists defining personality in terms of the need to achieve self-realisation and futuristic goals rather than just trying to fight against negative forces. The humanistic conception of personality conceptualises personality in terms of the need to self-actualise and self-realise oneself. The contribution of dispositional and trait factor theories thus come in handy not only

in defining personality from a hereditary or biological perspective, but also for defining personality in terms of some quantifiable and limited factors that are easy to research. This makes the theories perhaps more parsimonious. The social cognitive theories point to the need for personality theories to view the individual as cognitive rather than as passive.

In line with the foregoing, social cognitive theory defines personality in terms of the person, the situation and the environment in building the consistency and coherence of personality. In this definition, personality should be seen as consistent enough to vary between situations, where the cognitive process also determines the variability, consistency and coherence of personality. Once this is satisfied, the person will have behavioural signatures that are likely to be exhibited in different situations, but without varying at levels that distort the consistency of that personality. It is apparent in the literature reviewed that within the psychodynamic space, analytical psychology, and specifically the personality types model of personality and trait factor theory, seems to have received considerable research in occupational settings (Joseph & Newman, 2010; Leary et al., 2009; O'Boyle et al., 2011). The next section thus provides an integration of these theoretical models.

4.5 INTEGRATION OF PERSONALITY THEORETICAL MODELS

Table 4.3 shows the integration of theoretical models of personality as they apply to occupational settings.

Table 4.3

Models of Personality

Dimensions	Models	
	Personality types model of Myers and Briggs (Myers, 1987)	Trait-factor model (Costa & McCrae, 1992)
Construct definition	Personality is conceptualised in terms of types, in which people fall on either of the two opposite poles of personality types.	Personality is conceptualised in terms of traits, with personality lying on the continuum from one pole to the other.
Components	Personality is described in terms of two attitudes (extroversion/introversion) and six functions (thinking, feeling, sensing, perceiving, judging and intuition). A combination of the attitudes and functions produces 16 personality types.	Personality is described in terms of five factors (neuroticism, extroversion, agreeableness, openness and conscientiousness)
Link with cognitive intelligence	Intuiting and perceiving have been found to be positively associated with cognitive intelligence.	Generally, the five factors have significant albeit low correlations with cognitive intelligence.
Link with emotional intelligence	A moderate relationship with trait and mixed model emotional intelligence evident in research.	There is a moderate relationship with trait and mixed model emotional intelligence evident in research and a low relationship with ability emotional intelligence.
Link with job performance	Different personality types predict job performance at different levels depending on occupational categories and job types.	Different factors predict job performance at different levels depending on occupational categories, but agreeableness and conscientiousness have been found to predict job performance better than other factors.
Usefulness/ application to personnel selection	The model has not been extensively tested in the domain of personnel selection but is useful in development contexts.	The model has incremental validity over and above cognitive intelligence and has been extensively tested in occupational settings.

The trait theory of personality (the Big Five) (Costa & McCrae, 1992) has been tested in occupational settings with results that point in the same direction, that is, that agreeableness and conscientiousness seem to predict job performance across occupations (Joseph & Newman, 2010; O'Boyle et al., 2011). As mentioned earlier, the MBTI personality types (Myers & McCaulley, 1985) have been mainly used for the purposes of personnel development (Leary et al., 2009). If an instrument were useful in determining development gaps within an organisation, one would argue that it might be useful in determining the development gaps at

the personnel selection stage before a person is employed. It is important for employers to know the level of investment to plan for the people whom they will hire. Personality preferences must also be tested in personnel selection contexts so that their utility, as well as their incremental validity or redundancy with cognitive intelligence and emotional intelligence, concerning job performance may be ascertained. It is also important to ascertain the influence of the sociodemographic variables on personality types because this has some implications for personnel selection. The influence of sociodemographic variables is discussed in the next section.

4.6 VARIABLES INFLUENCING PERSONALITY

This section discusses the influence of gender, age, job tenure, and job type on personality types.

4.6.1 Gender

Research on the relationship between gender and personality types is scant (Rod, Ashill, & Gibbs, 2016; Furnham, Jensen, & Crump, 2008). In their study on personality, intelligence and assessment centre expert ratings, in which they used the MBTI (Myers & McCaulley, 1985) as one of their measures, Furnham et al. (2008) found that females (compared with males) scored lower on Thinking–Feeling ($M = 23.46$ vs. $M = 28.35$) and Judging–Perceiving ($M = 21.91$ vs. $M = 23.47$). Snipes, Thomson, and Oswald (2006) also note that more significant gender differences have been found in studies using the MBTI. Rod et al. (2016) found the feeling type to characterise women more than men. In a study on team performance, Gilal et al. (2016) found out that male leaders were characterised by the ENFJ types, while female leaders exhibited the INTJ. This information is useful in selecting team leaders for maximum performance. Thus, gender may have moderating effects on the relationship between personality and job performance and is likely to have implications for personnel selection.

4.6.2 Age

An old study by Cummings III (1995) revealed age group differences for both men and women using the MBTI. Cummings III notes that women seem to show a distinct decrease in the percentage of extraversion between ages 15 and 60. He also noted a curvilinear effect for both men and women over age groups with the most sensing types in the younger and older age groups. He also found a curvilinear effect with regard to thinking, with most thinkers falling

into the middle age groups. Cummings III (1995) provides some explanations for this observation. He proposes that this could reflect a true developmental change, a differential willingness to self-report certain behaviours over time, or simply generational-based value-programming effects.

A later study by Warr, Miles, and Platts (2001) showed that the Thinking–Feeling type was not linearly related to age for either men or women. They found a significant linear and non-linear relationship between extraversion/introversion. They also found Judging–Perceiving and Sensing–Feeling to be negatively associated with age. War et al. (2001) note that older ages are likely to be conscientious, modest, careful in interaction, conventional, sympathetic and helpful. They also note consistent negative age patterns for sociability, abstract thinking, career achievement, outgoingness, desired social contact and motivation, and a preference for variety.

4.6.3 Job tenure

It appears that research which deliberately sought to test the relationship between personality types and job tenure is limited. An old study by Danny (1982) showed introversion, sensing and judging to be positively correlated to job tenure, albeit at very weak levels. This also seems to confirm McCauley's (2000) assertion that personality preferences as measured by the MBTI are somewhat endogenous and to some extent affected by experience.

4.6.4 Job type

The conceptualisation of personality as psychological types has also been tested with regard to job type. Feist and Feist (2009) note that the different occupations require different or a combination of MBTI types. For example, they (Feist & Feist, 2009) point out that politicians are likely to possess feeling typology while portrait artists may fit within the introverted sensing type. It is also interesting to note that even within occupational categories, different personality types will become more important than others in predicting job performance (Carr et al., 2002). In their study on the relationship between personality and performance for engineering and architectural professionals, Carr et al. (2002) found that the manner in which the MBTI personality types predicted job performance not only differed in terms of the engineering and project planner jobs, but actually differed depending on the subtypes of work that the foregoing professions undertake. For example, Carr et al. (2002) note that participants high on Intuition and Perceiving outperformed individuals with preferences for Sensing and Judging in both the planning and construction roles of engineering. Gridley and Cripps (2014) found out that the

sensing and judging type characterise engineers. These findings have implications when assessing people for jobs using the personality types approach.

In summary, Table 4.4 below provides an integration of the variables influencing personality preferences.

Table 4.4

Variables Influencing Personality Preferences.

Demographic Variables	Influence on Personality Types
Age	Personality changes with changing age groups, and sometimes in a non-linear way.
Gender	Gender differences are evident in the Thinking–Feeling type, with women more oriented to the feeling type.
Job Tenure	Job tenure appears to be positively related (albeit a low relationship) to personality types.
Job Type	Different personality types are suited for different jobs.

The next section provides the theoretical integration with particular reference to constructing a theoretical personnel selection model based on the literature.

4.7 THEORETICAL INTEGRATION: TOWARDS CONSTRUCTING A PERSONNEL SELECTION MODEL

This section discusses the theoretical integration of personality types and job performance. The section also discusses the influence of sociodemographic variables of gender, age, job tenure, and job type on the relationship. Figure 4.1 below provides the full integrated personnel selection model which include personality types.

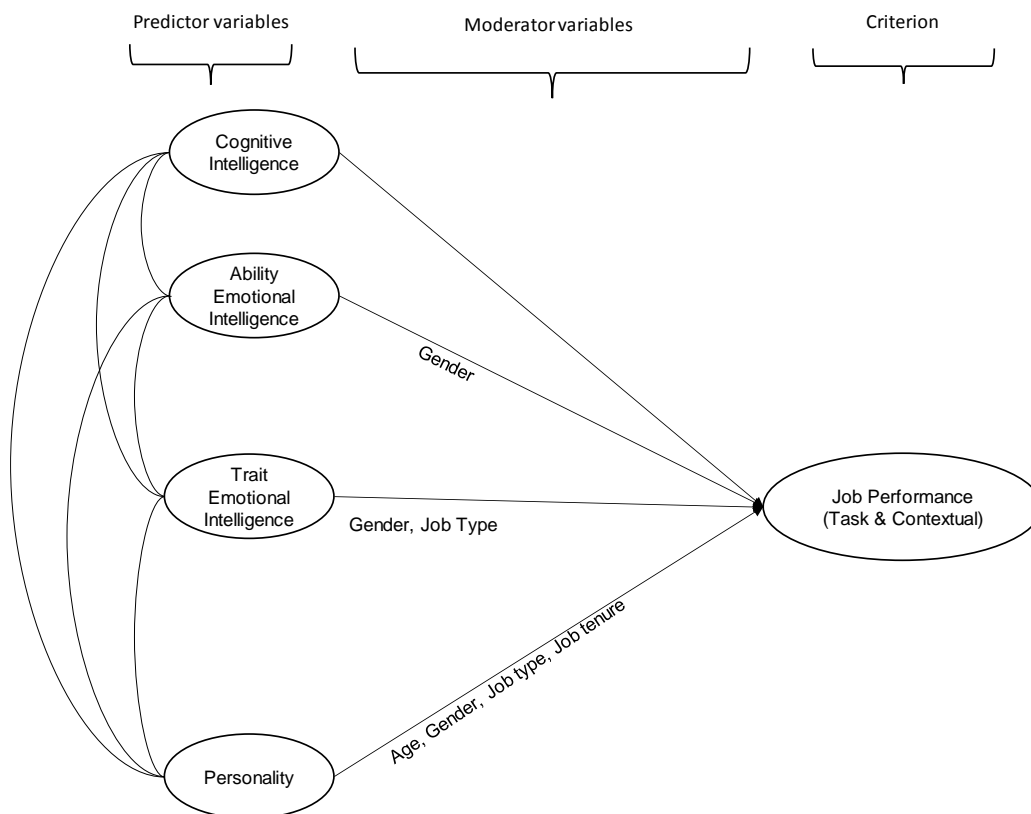


Figure 4.1. The proposed link between the variables: towards constructing a personnel selection model

A theoretical integration of the concept of cognitive and emotional intelligence (ability and trait) has been discussed in the previous chapter. This chapter will only focus on personality. Research shows that the personality types model and specifically the MBTI have been applied in assessment for personnel development but with limited use in personnel selection contexts (Chen et al., 2009). The inclusion of personality types in the proposed model stems from this researcher's view that since the MBTI is a valid psychological tool, it can be used in personnel selection contexts so that areas of personnel development can be identified early, namely, at the personnel selection stage. It should be noted that as illustrated in Figure 4.1 above, personality types appear to be influenced by age, gender, job type and job tenure, and not by age. To the extent that personality types are influenced by the sociodemographic variables mentioned in the preceding sentence, this has implications for personnel selection. The next section discusses the implications of personality types and sociodemographic variables for personnel selection.

4.8 IMPLICATIONS FOR PERSONNEL SELECTION

The influence of age, gender, job tenure and job type on personality has implications for personnel selection. For example, research suggests that there are gender differences on the Thinking-Feeling dimension, where women tend to score low (Furnham et al., 2008; Gilal et al., 2016; Rod et al., 2016; Snipes et al., 2006). Carr et al. (2002) also found differences in personality types for people in different types of occupations and different levels of job tenure. Age group differences have also been found in personality types (Cummings III, 1995; War et al., 2001). The implications of this are that industrial psychologists should use differential norming to cater for differences in personality types because of sociodemographic variables (Warr et al., 2001). The other implications may be that gender, job type, and job tenure may interact with personality in predicting job performance. Having discussed the implications of the personality for personnel selection, the next section provides an evaluation and synthesis of personality theory and its relationship with job performance.

4.9 EVALUATION AND SYNTHESIS

This section provides an evaluation and synthesis of personality types and their relationship with other variables and job performance.

4.9.1.1 Construct definition

The personality theory appears to have stood the test of time and the personality types theory of Myers and Briggs (Myers, 1987), which is a refinement of the psychological types theory of Jung (1921) seem to have been generally accepted in the practice of industrial psychology. Weak to moderate relationships have been found on some personality types like Thinking-Feeling and Judging-Perceiving with cognitive intelligence (crystallised and fluid intelligence) (Furnham et al., 2007). The personality types approach appears to have been well defined in the literature, but seems to have some relationship with trait emotional intelligence, which calls for further research on its construct stability. Nevertheless, the personality types theory has shown good construct definition.

4.9.1.2 Link between predictor variables

No significant relationship has been found between cognitive intelligence and trait emotional intelligence. As shown earlier in this section, moderate-to-weak relationships have been found on the MBTI's Thinking–Feeling type and crystallised and fluid intelligence.

4.9.1.3 Relationship with job performance

There has been limited research on the influence of personality types on job performance (Feist & Feist, 2009). Capretz et al. (2015) found the MBTI to predict job performance among software practitioners. Vincent et al. (2013) suggest that the MBTI's Intuition is associated with ego strength, which in turn is associated with leadership performance. This justifies the inclusion of personality types as one of the predictor variables of the present study.

4.9.1.4 Moderation of sociodemographic variables

Moderation occurs when another variable influences the relationship between an independent and a dependent variable (MacKinnon, 2011). In other words, MacKinnon (2011) argues, moderator effects, also called interaction effects, refer to a situation in which another variable changes or modifies the quality and strength of the relationship between an independent and a dependent variable. From the review of the literature on personality types, it has been seen that gender and job type may influence personality types (Gridley & Cripps, 2014; Rod et al., 2016; War et al., 2001). Thus, differential norming may need to be applied to avoid biases that may arise because of the influence of sociodemographic variables. In terms of the potential moderation, Industrial psychologists therefore need to be aware of the sociodemographic variables that may augment or inhibit job performance.

The full theoretical personnel selection model, which includes personality, is provided for in Chapter 5.

4.10 REVIEW OF THE AIMS AND SUB-AIMS THAT HAVE BEEN COVERED

All the research aims concerning the literature review have been covered and are restated below.

Research aim 1: To investigate how the research literature conceptualises personnel selection and job performance in general and in contemporary African and Zimbabwean organisational contexts.

Research aim 2: To investigate the way literature conceptualises the constructs of and relationship dynamics between cognitive intelligence, ability emotional intelligence, trait

emotional intelligence personality, and job performance and how this relationship can be explained in a theoretical personnel selection model.

Sub-aim 2.1: To conceptualise the theoretical relationship between cognitive intelligence and job performance

Sub-aim 2.2: To conceptualise the theoretical relationship between ability emotional intelligence and job performance

Sub-aim 2.3: To conceptualise the theoretical relationship between trait emotional intelligence and job performance

Sub-aim 2.4: To conceptualise the theoretical relationship between personality and job performance

Sub-aim 2.5: To determine whether the sociodemographic variables influence an individual's level of cognitive intelligence, emotional intelligence (ability and trait), and personality and level of job performance

Research aim 3: To investigate the elements of the theoretical model proposed for personnel selection based on the links between cognitive intelligence, ability emotional intelligence, trait emotional intelligence, personality, and job performance and to determine the implications for personnel selection practices.

The following section provides a summary of Chapter 4.

4.11 CHAPTER SUMMARY

This chapter discussed the concept of personality as it applies to personnel selection. A discussion of the theories and their corresponding models culminated in the motivation for the conceptualisation of personality as enshrined in the analytical paradigm and, specifically, the personality type theory of Myers and Briggs (Myers, 1987) for use in the present study. The relationship between personality types and job performance, including their relationship with the demographic variables of gender, age, job tenure, and job type, was also explored. Having discussed the concept of personality, this chapter completes the review of the variables relevant to this study. The next chapter discusses the theoretical integration of the variables relevant to the study.

CHAPTER 5: THEORETICAL INTEGRATION: TOWARDS CONSTRUCTING A THEORETICAL PERSONNEL SELECTION MODEL

This chapter discusses the theoretical integration of the variables relevant to this study. The full theoretical personnel selection model will be proposed. The chapter will also discuss the relevant psychometric properties, including issues to do with fairness and bias regarding the integrated personnel selection model. The usefulness and the limitations of the theoretical personnel selection model will be discussed. The chapter culminates with a discussion of the gaps in research pertaining to the theoretical personnel selection model. Figure 5.1 shows the proposed theoretical personnel selection model.

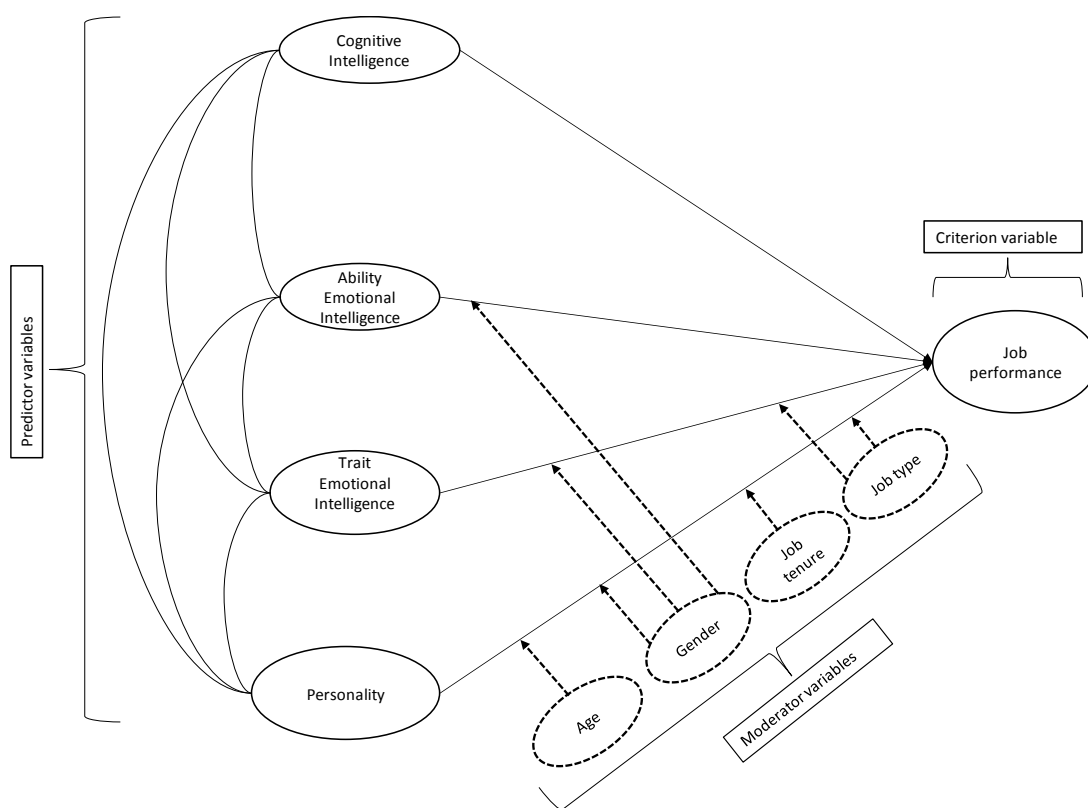


Figure 5.1. The theoretical personnel selection model

Figure 5.1 illustrates the personnel selection model proposed on the basis of the review of the literature. To recap, the aim of the present study was to construct a personnel selection model encompassing the influence of cognitive intelligence, emotional intelligence (ability and trait), and personality on job performance. This study defined job performance as the engagement in behaviours to achieve tasks that add value to the organisation (Motowidlo, 2003). The study also sought to investigate the moderation of the sociodemographic variables of age, gender,

job tenure, and job type on the same relationship. The next section discusses the predictive power of the personnel selection model.

5.1 THE PREDICTIVE POWER OF COMPONENTS OF THE PERSONNEL SELECTION MODEL

The arrangement of predictor variables from top to bottom in Figure 5.1 indicates the way in which the literature conceptualises the predictive power of the variables. Empirical research has shown that cognitive intelligence is perhaps the single best predictor of job performance across all jobs (Gonzalez-Mulé et al., 2014; Joseph & Newman, 2010; O'Boyle et al., 2011). In addition, the sociodemographic variables investigated do not seem to have interaction effects with cognitive intelligence in predicting job performance.

Ability emotional intelligence seems to be the second-best predictor of job performance, but its relationship with job performance may be moderated by gender (Joseph & Newman, 2010; O'Boyle et al., 2011). Evidence also suggests that although ability emotional intelligence comes second after cognitive intelligence in terms of predicting job performance, it has been found to add little or no incremental validity beyond cognitive intelligence (Joseph & Newman, 2010; O'Boyle et al., 2011). This is because research suggests that it is similar to cognitive intelligence (Cote & Miners, 2006; Gooty et al., 2014). In fact, Mayer and Salovey (1997) argue that emotional intelligence fits well with the properties of traditional intelligence.

Trait emotional intelligence appears to have less predictive power than cognitive intelligence and ability emotional intelligence but has better incremental validity over and above cognitive intelligence than ability emotional intelligence (O'Boyle et al., 2011). However, as already discussed earlier, gender and job type appear to have moderation and interaction effects on the relationship between trait emotional intelligence and job performance.

It is, however, important to note that the personality types model, and specifically the MBTI, has been used more extensively for personnel development assessment than in personnel selection contexts (Chen et al., 2009; Leary et al., 2009). Nevertheless, research has demonstrated a relationship between some personality types and cognitive intelligence. For example, Higgs (2001) found that the Thinking–Feeling dichotomy was positively related to emotional self-awareness. In addition, Perry and Ball (2005) found a significant relationship between intrapersonal and interpersonal intelligence and the MBTI (Myers & McCaulley, 1985). Johnson and Miller (2003) found extraversion to be positively significantly correlated with the Global Personality Inventory (Schmit et al., 2000), as well as the subscales of self-

awareness, social skills, motivation and empathy. However, Perry and Ball (2005) found personality types and trait emotional intelligence to be distinct constructs. Unlike cognitive intelligence and ability emotional intelligence, personality types have been found to be influenced by gender, job tenure, and job type.

5.2 USEFULNESS AND LIMITATIONS OF THE PERSONNEL SELECTION MODEL

From the literature reviewed, the components of the theoretical personnel selection model appear to be distinct constructs. This suggests that predictor variables complement each other by way of incremental validity or compensatory effect. For example, while ability emotional intelligence seems to have lower incremental validity over cognitive intelligence, it may have a compensatory effect where cognitive intelligence is low (Cote & Miners, 2006). Trait emotional intelligence seems to have better incremental validity beyond cognitive intelligence, indicating its utility in the model. The MBTI has mainly been used for personnel development, but since it is a valid psychological measurement tool, its utility stems from the need to identify personnel development needs at the selection stage. In terms of the moderation, the sociodemographic variables may have interaction effects with the predictor variables in predicting job performance.

The theoretical personnel selection model was also limited in some respects. The predictor variables were only limited to cognitive intelligence, emotional intelligence (ability and trait), and personality. There are other predictors, which were not considered by the study. In addition, job performance was only defined in terms of task and contextual performance (OCBI and OCBO), while there could be more conceptualisations of job performance. The sociodemographic variables were also limited to age, gender, job tenure, and job type.

However, despite the limitations, a personnel selection model can be proposed from the literature, with the predictive power of variables on job performance arranged as follows:

Cognitive intelligence; ability emotional intelligence; trait emotional intelligence; personality types.

In summary, the personnel selection model illustrated in Figure 5.1 and the discussion of its components that have been given so far have implications for personnel selection. The next section discusses the implications of the model for personnel selection.

5.3 IMPLICATIONS OF THE INTEGRATED PERSONNEL SELECTION MODEL

As already stated, a personnel selection model should predict job performance with good validity (Joseph & Newman, 2010, O'Boyle et al., 2011). It also should be efficient in terms of time and should be cost-effective. In addition, it should not discriminate job candidates on any criteria other than job performance.

From a predictive viewpoint, the components of the personnel selection model appear to complement each other. As already discussed, cognitive intelligence seems to predict job performance better than the rest of the predictors. Ability emotional intelligence seems to be the second-best predictor of job performance in the model but has low incremental validity over and above cognitive intelligence. As research has demonstrated, ability emotional intelligence may compensate for cognitive intelligence for people with low cognitive intelligence (Cote & Miners, 2006). However, the assertion in the preceding statement need to be taken with caution since it may be difficult to explain why people with low cognitive intelligence may suddenly perform well on the job simply because they have high ability emotional intelligence especially if the job performance criteria is the same, unless cognitive intelligence is not reliable predictor of job performance. Trait emotional intelligence seems to be the third-best predictor of job performance. In addition, it has better incremental validity over cognitive intelligence than ability emotional intelligence, indicating its utility in the model.

For personality types, implications for personnel selection may be that any development tool that satisfies the required level of psychometric properties should also be applicable to personnel selection contexts. This is because to the extent that the personality types approach can assist in determining person-job fit, employing organisations should find utility in using personality types assessment tools for selection because they assist in determining the level of investment required in the development activities of candidates should they should be selected to fill job vacancies (Kosti et al., 2014).

The literature reviewed indicates that cognitive intelligence is not affected by the sociodemographic variables relevant to this study. This indicates that cognitive intelligence assessment tools can be used across a variety of personnel selection contexts. The predictive power of ability emotional intelligence may be moderated by gender, suggesting that caution should be exercised in interpreting the results of ability emotional intelligence tools. Job type and gender seem to moderate the relationship between trait emotional intelligence and job performance. Research suggests that trait emotional intelligence predicts job performance for high emotional labour jobs. Also, females seem to have better scores on trait emotional

intelligence tests. This, therefore, calls for the differential norming of results from trait emotional intelligence tests. Cummings III (1995) points out that the results of the MBTI are affected by age. Whatever the causes of the differential age effect, selection decisions should perhaps be based on differential norming as other subgroups may be disadvantaged. Warr et al. (2001) note that failure to use differential norming may lead to age-based discrimination where, depending on the competencies required for a specific job, some individuals may be unjustifiably viewed as failing to reach a threshold of acceptability. It is also important to mention that gender differences have been found on the Thinking–Feeling dimension, where women tend to score low (Furnham et al., 2008; Snipes et al., 2006). As already mentioned, Rod et al. (2016) and Gilal et al. (2016) argue that gender differences exist between personality types. Thus, unless differential norming is exercised, there could be gender discrimination, especially in countries that advocate strict equal opportunity principles in occupational settings. The same applies in the case of job type and job tenure, where differences in scores for different job types have been observed when using the MBTI (Carr et al., 2002).

Having discussed the implications of the personnel selection model, the next section provides an evaluation and synthesis of the literature reviewed.

5.4 EVALUATION AND SYNTHESIS: TOWARDS CONSTRUCTING THEORETICAL PERSONNEL SELECTION MODEL

This section provides an evaluation of and conclusions from the literature. An evaluation of the variables and the conclusions will be discussed in terms of the criteria for a personnel selection model, the relationships between the components and the predictive power of the components of the theoretical personnel selection model, and the limitations of the theoretical personnel selection model.

5.4.1 Job performance and the criteria for a personnel selection model

The present study sought to propose a personnel selection model encompassing the influence of cognitive intelligence, emotional intelligence (ability and trait), and personality on job performance, as well as the potential moderation of age, gender, job tenure, and job type on the relationship. The predictive efficacy of a personnel selection model depends on whether or not the criterion of job performance has been clearly defined. In Chapter 2, job performance was defined in line with Motowidlo (2003), as the engagement of behaviour to perform tasks that contribute to the value of an organisation. In addition, two theoretical models of job

performance were adopted for this study. These are task performance, which refers to the in-role behaviours aimed at the achievement of the technical core of the job, and contextual performance (OCBO and OCBI), which refers to extra-role behaviour which complements the achievement of the technical core of the job by assisting the organisation and fellow employees (Motowidlo, 2003). Thus, a personnel selection model should be able to predict job performance with good reliability and validity. The model should also be fair and free of bias in that it should not discriminate against job candidates on the basis of any other criteria apart from the job performance criteria. However, in reality, not all components of a personnel selection model may be free from the interactional effects of sociodemographic variables. When this happens, industrial psychologists should be aware of the sociodemographic variables that may augment or inhibit job performance so that correctional procedures like differential norming may be applied.

The next section provides an evaluation of the components (constructs) of the personnel selection model proposed in line with the literature review.

5.4.2 Evaluation of the components of the theoretical personnel selection model

This section provides an evaluation of the components (constructs) of the personnel selection model proposed in line with the literature review.

5.4.2.1 Construct definition

Cognitive intelligence, ability emotional intelligence, trait emotional intelligence and personality have appeared in research and the literature reviewed as distinct constructs. The concept of cognitive intelligence and related theoretical models have stood the test of time and have evolved into a paradigm, indicating that cognitive intelligence has been well defined over the years. The definition of ability emotional intelligence appears adequate because it differs from other non-cognitive measures of emotional intelligence that are not based on forced choices. Trait emotional intelligence appears to have been well defined in the literature; however, it seems to have some relationship with personality, which calls for further research on its construct stability. In summary, the components of the personnel selection model proposed in line with the literature review are valid and distinct constructs indicating the efficacy of the model from a construct validity point of view.

5.4.2.2 Link between predictor variables

No significant relationship has been found between cognitive intelligence and trait emotional intelligence. As shown earlier in this section, moderate-to-weak relationships have been found on the MBTI's Thinking–Feeling type and crystallised and fluid intelligence. Research has also shown that there is no significant relationship between cognitive intelligence and ability emotional intelligence (Cote & Miners, 2006). This shows that the three predictors of job performance stand as distinct constructs.

5.4.2.3 Relationship with job performance

As mentioned earlier, any personnel selection model should be able to predict job performance with high predictive validity. From the variables or components of the proposed personnel selection model, it appears that cognitive intelligence has the highest relationship with job performance across all occupations, followed by ability emotional intelligence. From the meta-analytic studies conducted by Joseph and Newman (2010) and O'Boyle et al. (2011), ability emotional intelligence has been shown to have low incremental validity above cognitive intelligence. However, Cote and Miners (2006) assert that ability emotional intelligence may compensate for job performance where cognitive intelligence is low. As mentioned earlier, trait emotional intelligence has a relationship with job performance, but with lower predictive power than cognitive intelligence and ability emotional intelligence. However, trait emotional appears to have better incremental validity over and above cognitive intelligence than ability emotional intelligence. Trait emotional intelligence also predicts job performance better in high emotional labour jobs. This indicates that trait emotional intelligence could improve the utility of a personnel selection model that includes either cognitive intelligence or ability emotional intelligence. With regard to personality types as measured by the MBTI, limited research has been done in personnel selection contexts (Feist & Feist, 2009). Capretz et al. (2015) found the MBTI to predict job performance among software practitioners, while Vincent et al. (2013) suggest that the MBTI's Intuition is associated with ego strength, which in turn is associated with leadership performance. However, when combined, it is this researcher's view, based on the literature reviewed, that the component predictor variables in the theoretically proposed personnel selection model may predict job performance with good validity.

5.4.2.4 Moderation of sociodemographic variables

As stated earlier, moderation or interaction occurs when a third variable influences the relationship between an independent and a dependent variable (MacKinnon, 2011). This section discusses the moderation of gender, age, job tenure, and job type.

a) Gender

As already stated, gender appears not to moderate the relationship between cognitive intelligence and job performance. Gender may also influence personality types. Females tend to perform better on emotional intelligence tests, indicating that gender may moderate the relationship between emotional intelligence (ability and trait) and job performance. Thus, based on the nature of the work, the best-fit person might be the one with higher emotional intelligence, which unintentionally might privilege females.

b) Job type

It appears that job type does not interact with each of cognitive intelligence and ability emotional intelligence in predicting job performance. Trait emotional intelligence has been found to predict job performance for high emotional labour jobs like customer management (Joseph & Newman, 2010; Joseph et al., 2015; O'Boyle et al., 2011). This suggests that a model with trait emotional intelligence may have better utility than one where job performance criteria are defined in terms of emotional labour. Job type differences have also been noted on the different personality types (Feist & Feist, 2009).

c) Age and job tenure

Both age and job tenure have been found to have no moderation effects on the relationship between the predictor variables of cognitive intelligence, ability emotional, intelligence, and trait emotional intelligence. This indicates that these variables are not likely to bring sources of bias to a personnel selection model. However, research has shown that there are job tenure differences in personality types (McCaulley, 2000).

5.4.2.5 Usefulness of the personnel selection model

The proposed personnel selection model, as conceptualised from the literature, consists of distinct constructs (Joseph & Newman, 2010; O'Boyle et al., 2011). Predictor variables in the

model appear to complement each other regarding individual and incremental validity. While ability emotional intelligence seems to have lower incremental validity over and above cognitive intelligence, it can have a compensatory effect for cognitive intelligence. Trait emotional intelligence seems to have incremental validity over cognitive intelligence suggesting that it adds to the utility of the model. The MBTI has mainly been used for personnel development, but its utility may stem from the need to identify personnel development needs at the selection stage, which may reduce investment in training of candidates when they are eventually selected for jobs.

5.4.3 Limitations of the personnel selection model and gaps in research

The major limitation of the model is that it has been created from evidence coming from different studies on the relationship between the variables. Limited research has been done, specifically on the number of independent, depended, and moderator variables like those adopted for the present study. This calls for empirical research that simultaneously investigates the variables relevant to this study to provide a clearer picture of the relationship between the variables.

As already stated, the attempt that came closest to determining the relationships between the predictor variables in the study and job performance was through meta-analysis. The significant contributions for these meta-analyses are Joseph and Newman (2010) and O'Boyle et al. (2011). However, while meta-analysis incorporates correctional procedures aimed at standardising methodologies and statistical analysis, it may lack empirical rigour. This call for an empirical study to concurrently investigate the relationship between cognitive intelligence, emotional intelligence (ability and trait) and personality with job performance, including the potential moderation or interaction effects of age, gender, job tenure, and job type on the same relationship.

While research suggests that ability emotional intelligence has little incremental validity over and above cognitive intelligence, Cote and Miners (2006) suggest that ability emotional intelligence may compensate for job performance when cognitive intelligence is low. Thus, research needs to test the compensatory model where high ability emotional intelligence may compensate for low cognitive intelligence and the practical implications of such a model.

The job performance criterion has not been standard across studies. These studies range from the use of supervisory ratings, academic performance and job simulation as proxies for job performance (Abraham, 2004; Carmeli & Josman, 2006; Cichy et al., 2009; Christiansen

et al., 2010; Dan et al., 2015; Lam & Kirby, 2002; McNulty et al., 2016). Some studies have also used only task performance, ignoring contextual performance, which had been defined over the years (Dan et al., 2016). Thus, studies have to adequately define the criterion of job performance to provide a clear picture of the relationship between job performance predictors and job performance criteria.

The conceptualisation of personality in terms of personality types has received limited research in personnel selection contexts and therefore its relationship with job performance needs to be examined further. The fact that some components of the personality types are positively correlated with components of personality traits, cognitive intelligence, and emotional intelligence points to the potential utility of the analytical conceptualisation of personality in personnel selection and, thus, requires further enquiry.

In summary, having provided an evaluation and synthesis of the variables relevant for this study, all the research aims for the literature review have been covered.

5.5 REVIEW OF THE AIMS AND SUB-AIMS THAT HAVE BEEN COVERED

All research question from literature review have been covered and are once again restated below for reference.

Research aim 1: To investigate how the research literature conceptualises personnel selection and job performance in general and in contemporary African and Zimbabwean organisational contexts.

Research aim 2: To investigate the way literature conceptualises the constructs of and relationship dynamics between cognitive intelligence, ability emotional intelligence, trait emotional intelligence personality, and job performance and how this relationship can be explained in a theoretical personnel selection model.

Sub-aim 2.1: To conceptualise the theoretical relationship between cognitive intelligence and job performance

Sub-aim 2.2: To conceptualise the theoretical relationship between ability emotional intelligence and job performance

Sub-aim 2.3: To conceptualise the theoretical relationship between trait emotional intelligence and job performance

Sub-aim 2.4: To conceptualise the theoretical relationship between personality and job performance

Sub-aim 2.5: To determine whether the sociodemographic variables influence an individual's level of cognitive intelligence, emotional intelligence (ability and trait), and personality and level of job performance

Research aim 3: To investigate the elements of the theoretical model proposed for personnel selection based on the links between cognitive intelligence, ability emotional intelligence, trait emotional intelligence, personality, and job performance and to determine the implications for personnel selection practices.

The next section outlines the research hypotheses formulated for the study.

5.6 RESEARCH HYPOTHESES

Based on the information provided in the background and motivation for the study, as well as the literature reviewed, the following are the research hypotheses for the study.

H1: There is a statistically significant positive correlation between each of the predictor variables of cognitive intelligence, trait emotional intelligence, ability emotional intelligence, and personality and the criterion of job performance.

H2: The predictor variables of cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality significantly predict job performance.

H3: The theoretically hypothesised personnel selection model has a good fit with the empirically manifested personnel selection model.

H4: There is a significant interaction effect between the predictor variables (cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality, respectively) and the sociodemographic variables of age, gender, job tenure, and job type in predicting job performance.

H5: Individuals from different age, gender, job tenure, and job type groups differ significantly regarding their cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality, respective and job performance.

The following section provides a summary of Chapter 5.

5.7 CHAPTER SUMMARY

In this chapter, the integration of theory and theoretical models applicable to the present study was provided. The theoretical integration was discussed in terms of the predictive power of the components of the theoretical personnel selection model. Issues pertaining to construct definition for the applicable variables was discussed. In addition, theoretical integration was provided in terms of the link between predictor variables, the relationship between the variables and job performance, the potential moderation of demographic variables on the relationship between predictor variables and job performance, the usefulness of the personnel selection model, limitations of the personnel selection model and gaps in research. The chapter ended by reviewing the research aims covered as well as stating the research hypotheses.

A discussion of the theoretical integration completes the literature review. The next chapter outlines and discusses the research method used for the empirical study.

CHAPTER 6: RESEARCH METHOD

This chapter outlines the research approach and the research methodology adopted for the empirical investigation of the research questions. Statistical methods and strategies used to investigate the influence of cognitive intelligence, emotional intelligence (ability and trait), and personality on job performance, as well as the moderating effects of age, gender, job tenure, and job type are described and explained in this chapter. The next section discusses the research approach to the study.

6.1 RESEARCH APPROACH

This section discusses the research approach applicable to the study and the advantages and limitations of the adopted research approach.

From a design point of view, the study followed a cross-sectional research design, because the respondents or research participants were studied at one particular point in time (Teasdale & Ivanich, 2017). The major limitation of cross-sectional research designs is that causality of the significant relationships between variables may not be established (Maninder, 2016). However, and despite these limitations, cross-sectional research designs are relatively faster and inexpensive to do (Maninder, 2016). Thus, because of the exploratory nature of research, it only investigated the magnitude and direction of the associations between the variables as opposed to cause-and-effect relationships. It is important to note that any other information that might have emerged from the data from this research was not the primary focus of this study.

From a methodological point of view, the applicable research method was the quantitative research approach (Leavy, 2017). According to Leavy (2017), quantitative research involves classifying features or variables, counting them, and constructing statistical models in an attempt to explain what is observed. Quantitative research involves the researcher predetermining what they want to study and develops a careful methodology that is strictly followed in order to collect the relevant data (Daniel, 2016). For the present study, the problem statement, the quantitative nature of the data collected, and the setting of predetermined objectives makes the research quantitative in nature.

From a scientific point of view, the quantitative approach has the advantage that the scientific method involved in collecting the data makes the data amenable to hypothesis testing, which assists in generalising research results to a wider population (Daniel, 2016). Another

advantage is that the researcher is detached from the sample from which the data is collected, which guarantees objectivity of data collected (Bryman, 2012). From a practical point of quantitative research methodologies make data collection faster and easier than, for example qualitative research methods.

The major limitation of the quantitative approach is that it does not provide for probing to get clarity on data provided by respondents, and in the process makes it difficult to extract qualitative data (Daniels, 2012). In addition, and according to Leavy (2017), the quantitative research approach ignores any serendipitous information coming out of respondents. Rather, such serendipitous occurrences may only be suggested for future research (Leavy, 2017). However, the nature of the research questions of the study justified the use of the quantitative research approach because the advantages of choosing the design outweighed the disadvantages mentioned above.

The following steps were taken in conducting the empirical research:

Step 1 Determination and description of the sample.

Step 2 Choosing and justifying the choice of the psychometric battery.

Step 3 Administration of the psychometric battery.

Step 4 Capturing the research data.

Step 5 Formulation of research hypotheses.

Step 6 Statistical processing of the data.

Step 7 Reporting and interpretation of the results.

Step 8 Integration of the research.

Step 9 Discussion, formulation of research conclusions, limitations of the study, and recommendations from the study.

Chapter 6 chapter describes and explains steps 1 to 6. Steps 7 to 9 will be addressed in chapters 7 and 8.

6.2 DETERMINATION AND DESCRIPTION OF THE SAMPLE

The research participants for the study were employees occupying grades C Upper and D Lower of the Paterson job grading system, which consist of supervisory and professionally qualified and experienced specialists. Participants were drawn from five private and publicly listed organisations in Zimbabwe. Only 299 usable questionnaires were obtained. The research employed a non-probability convenience sampling method for selecting both

organisations and employees to participate in the study (Lim & Ting, 2012). This sampling technique involves drawing a sample that forms part of a population that is not only close at hand but also quick to access (Lim & Ting, 2012). Considering the complexity of the study regarding the instruments used and the data collection methods, convenience sampling was deemed the easiest means for accessing the sample. To avoid the pitfalls of the convenience sampling method, the researcher ensured that the sample was reasonably representative by including a broad cross-section of participants from different occupations, ages, job tenures, job types, and genders. Thus the distribution of respondents for the study was described in terms of age, gender, job type, job tenure, and occupation level or grade, which is provided next.

6.2.1 Sample composition by gender

Table 6.1 shows the distribution of the sample by gender. From Table 6.1 below, male respondents represented the majority of the sample at 61.2%, while female respondents constituted 38.8%.

Table 6.1

Gender Distribution (N = 299)

Gender	Frequency	Percent
Male	183	61.2
Female	116	38.8
Total	299	100.0

6.2.2 Sample composition by age

Table 6.2 below shows the distribution of the sample by age group. The 22 to 36 years age group constituted 60.54% of the respondents and 39.46% were 37 to 61 years.

Table 6.2

Sample Distribution by age (N = 299)

Age Category	Frequency	Percent
22 to 36 years	181	60.54%
37 to 61 years	118	39.46%
Total	299	100.0

6.2.3 Sample composition by job type

Figure 6.1 below shows the distribution of the sample by job type.

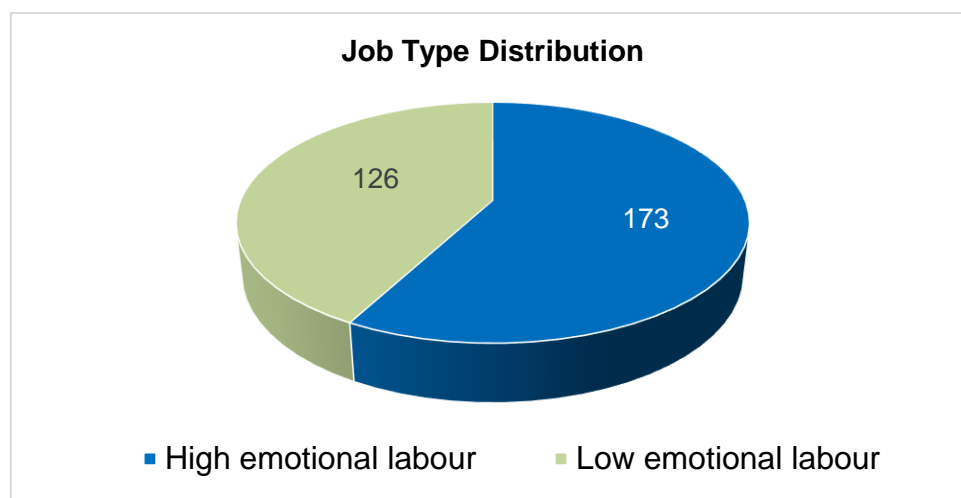


Figure 6.1: Sample distribution by job type (N = 299)

Job type was categorised as either high emotional labour or low emotional labour. Figure 6.1 above shows that of the 299 respondents, 126 or 42.1% of the respondents occupied low emotion labour jobs, while 173 or 57.9% occupied high emotional labour jobs.

It was also important to report on the job or professional categories falling under the different job types as shown in Table 6.3 and table 6.4. This information is important in the interpretation of the results and in guiding industrial psychologists on personnel selection interventions directed towards the different job types.

According to the sample of respondents from the Zimbabwean organisational environment, Table 6.3 shows that high emotional labour jobs fell under the professional categories of customer service, marketing and sales, human resources and training, medical and health services, advisory and advocacy, investigative, and legal and regulatory.

Table 6.3

Sample Distribution by High Emotional Labour Job Categories

Job Category	Frequency	Percent
Customer service, marketing and sales	109	63.01
Human resources and training	33	19.08
Medical and health services	12	6.94
Advisory and advocacy	10	5.78
Investigative	7	4.05
Legal and regulatory	2	1.16
Total	173	100.00

Tables 6.4 shows that low emotional labour jobs fell under the professional categories of finance and accounting, engineering and information technology, research and statistics, and biological and food sciences.

Table 6.4

Sample Distribution by Low Emotional Labour Job Categories

Job Professional Category	Frequency	Percent
Finance and accounting	51	40.48
Engineering and information technology	47	37.30
Research and statistics	15	11.90
Biological and food sciences	13	10.32
Total	126	100.00

6.2.4 Sample composition by job tenure

Figure 6.2 below shows the distribution of sample participants by job tenure.

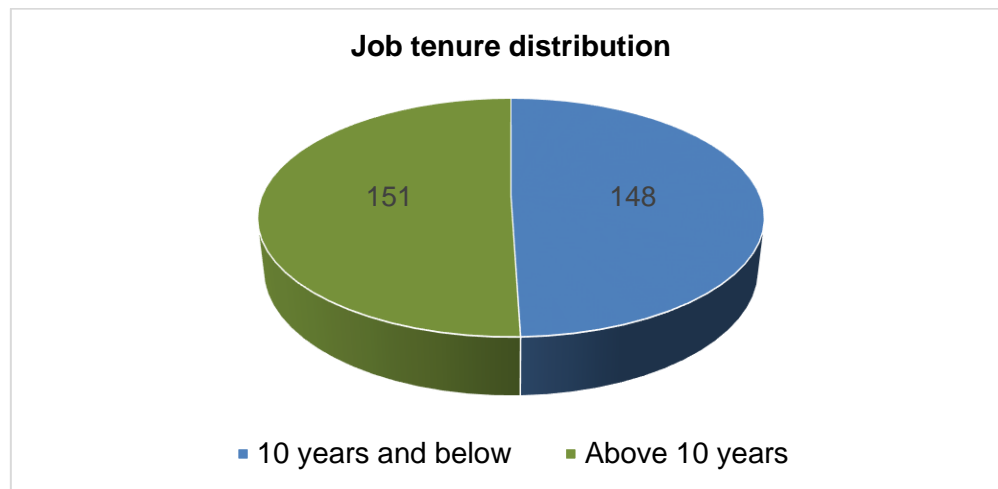


Figure 6.2: Sample distribution by job tenure (N = 299)

Job tenure was measured as the total tenure within and outside the company. Figure 6.2 shows that 148 (49.50%) of the respondents had job tenures of 1 to 10 years. One hundred and fifty-one (151) or 50.50% had job tenures of above 10 years.

6.2.5 Sample composition by occupational level (grade)

Table 6.5 below shows the distribution of sample participants by occupational level (grade). The table shows that 265 of 86.6% of the respondents were in the Paterson Grade C Upper (supervisory employees) and 34 (11.4%) were in grade D Lower (professionally qualified specialists).

Table 6.5

Sample Distribution by Occupational Level (grade) (N = 299)

Paterson Grade	Frequency	Percent
C Upper	265	88.6
D Lower	34	11.4
Total	299	100.0

6.2.6 Summary: sociodemographic profile of the sample

Section 6.2 contained information about the determination and description of the sample size. The distribution of sample size by age, gender, job tenure, and job type is important since these were the moderator variables for the study. These variables will be revisited in Chapter 7 when inferential statistics will be computed as part of hypotheses testing. The distribution of the sample by grade was given to show the reader the other relevant characteristics of the sample.

The next section outlines the choice and justification of the psychometric test battery used.

6.3 CHOOSING AND JUSTIFYING THE MEASUREMENT INSTRUMENTS

Research instruments were chosen based on their psychometric properties in terms of reliability and validity. Reliability refers to the consistency of an instrument in measuring a particular construct (Albers, 2017). Validity refers to the extent to which an instrument measures what it purports to measure (Anastasi & Urbina, 1997; Gregory, 2004; Leavy, 2017). Reliability is necessary but not sufficient to justify the inclusion of a measurement instrument. An instrument can be said to have robust psychometric properties if it demonstrates both reliability and validity in measuring a particular construct. It is against this background that the instruments listed in Table 6.6 were used in this study:

Table 6.6
Psychometric Test Battery Used

Instrument and author	Construct measured
General Ability Measure for Adults (GAMA) (Naglieri & Bardos, 1997)	Cognitive intelligence
Wong's Emotional Intelligence Test (WEIS) (Wong et al., 2004)	Ability emotional intelligence
Assessing Emotions Scale (AES) (Schutte et al., 1998)	Trait emotional intelligence
Myers-Briggs Type Indicator (MBTI), Form M (Myers, et al., 1998).	Personality types
William and Anderson's (1991) Job Performance Scale	Job performance

The study used a questionnaire to gather demographic information about names, age, gender, job title, job type, grade, and job tenure (Appendix 3).

The following sections focus on the development of and rationale for the inclusion of the instruments used, including their description, administration and interpretation. The validity and reliability of the instruments are also discussed.

6.3.1 General Ability Measure for Adults (GAMA): Cognitive intelligence

This section discusses the development, rationale, description, interpretation and psychometric properties, as well as the motivation for the use of the GAMA.

6.3.1.1 Development of General Ability Measure for Adults (GAMA)

The GAMA was developed by Naglieri and Bardos (1997). It is designed to measure cognitive intelligence or general mental ability using abstract designs. Thus, the GAMA assists in evaluating an individual's overall general ability using items that require one to apply reason and logic to solve problems that utilises abstract designs and shapes. The test has four subscales which require examinees to match, recognise analogies and determine sequences and construction of shapes using abstract designs (Ispas, Iliescu, Ilie, & Johnson, 2010).

6.3.1.2 Rationale for the inclusion of the GAMA

The GAMA was used because its primary purpose is to measure unitary cognitive intelligence. In addition, it utilises abstract designs as opposed to items requiring verbal comprehension and usage. As a result, cognitive intelligence is not confounded by the level of understanding of the English language, since abstract figures are designed to minimise the effects of knowledge, verbal expression and verbal comprehension on the test scores (Bardos, 2001).

6.3.1.3 Description of GAMA

The GAMA is a 66-item test, which takes 25 minutes to complete. The GAMA consists of four subscales, which are described below:

a) Matching subscale

In the matching subscale, the examinee is given a design and then required to determine one of the six options provided which is identical to the given stimuli in shape, colour and configuration. This subscale has 11 items. An example of the matching item is given below.

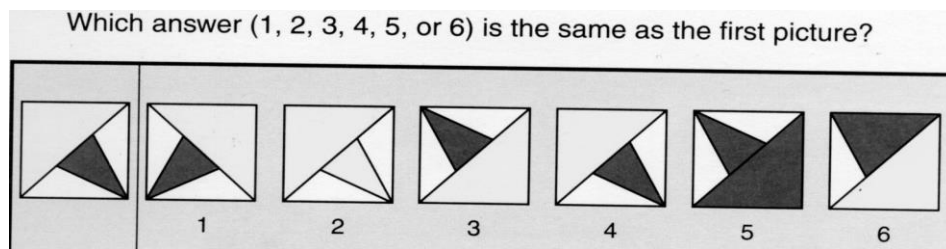


Figure 6.3: Example of a matching item

Source: Naglieri and Bardos (1997, p. 3)

b) Analogies subscale

This subscale requires the candidate to determine or recognise the relationship between two abstract figures and identifies the option that has a different pair of figures with the same conceptual relationship. The analogies subscale has 17 items. An example of the analogies item is given below.

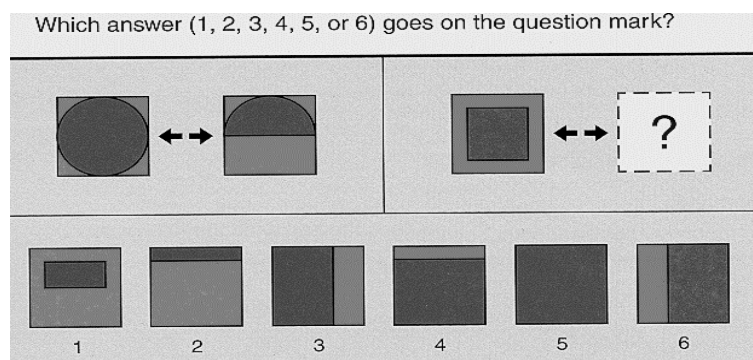


Figure 6.4: Example of an analogies item

Source: Naglieri and Bardos (1997, p. 4)

c) Sequences subscale

The sequences subscale presents figures in which the shape, location and colour of geometrical designs change in a certain logical sequence. The examinee is required to recognise the pattern of change and then choose the option that fits the pattern. The sequences subscale has 20 items. An example of a sequence item is given below.

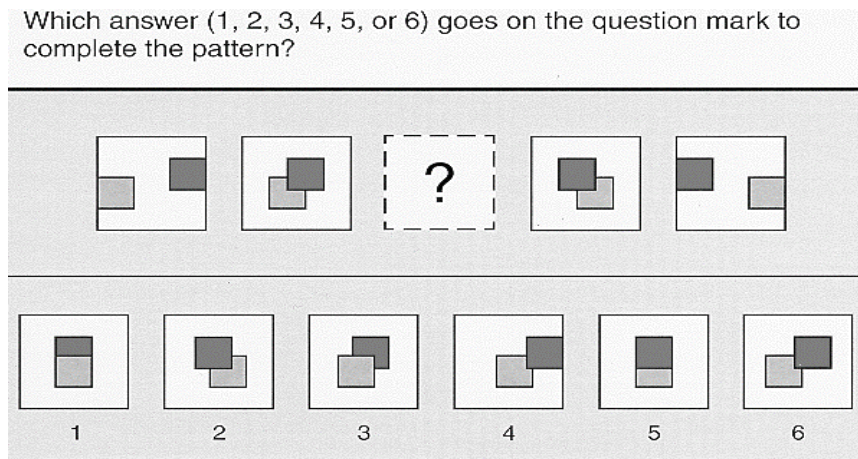


Figure 6.5: Example of a sequences item

Source: Naglieri and Bardos (1997, p. 4)

d) *Construction subscale*

The construction subscale requires the examinee to determine the way in which given shapes can be combined to produce one of the figures given as options. The examinee is required to analyse and synthesise the spatial relationships and characteristics of the shapes and then mentally construct designs using two to four stimuli of various shapes and colours. The construction subscale has 18 items. An example of a construction item is given below.

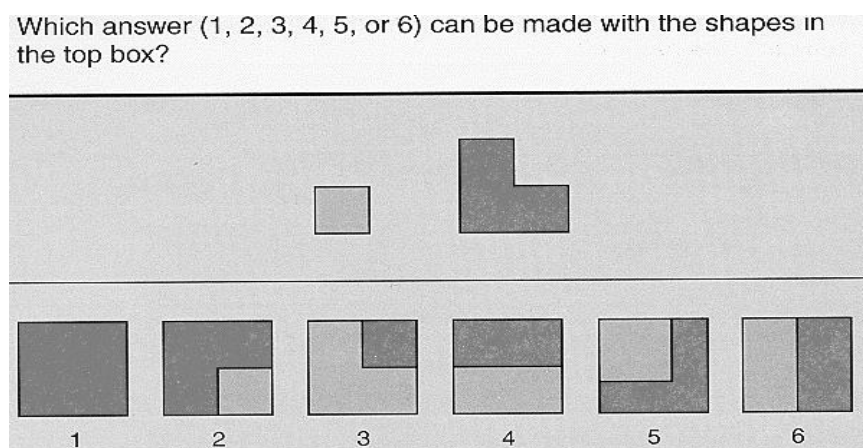


Figure 6.6: Example of a construction item

Source: Naglieri and Bardos (1997, p. 5)

6.3.1.4 Administration of the GAMA

The GAMA can be administered as an individual or group test to candidates aged 18 years and above. It is an objective test in which one and only one of the six answer options is correct. The GAMA is a supervised test which takes 25 minutes to complete.

6.3.1.5 Interpretation of the GAMA

The GAMA is a multiple-choice test with six options to choose from. Although it has 66 items, responses to these items are converted into standard IQ scores with a total possible score of 160, a mean score of 100, and a standard deviation of 15. The GAMA subscales scores are set at a mean of 10 and a standard deviation of 3. Apart from the provided raw scores, the GAMA also uses percentile ranks to interpret the performance of examinees on the test. Scores also come with confidence intervals to aid the interpretation.

6.3.1.6 Validity and reliability of the GAMA

The reliability of the GAMA was tested using the test-retest method. Split-half reliabilities for the matching, analogies, sequences and construction sub-tests were as high as .77, .87, .87, and .73 respectively (Naglieri & Bardos, 1997). Overall, the split-half reliability of the GAMA IQ was found to be .94 (Naglieri & Bardos, 1997). Naglieri and Bardos (1997) also found test-retest reliability of .55, .65, .74, .38, and .67 for the matching, analogies, sequences, construction, and the GAMA IQ respectively. With regard to validity, the relationship between the GAMA and the Kaufman Brief Intelligence Test (KBIT) (Kaufman & Kaufman, 1990) was reported to be as high as .73. The relationship between the GAMA and the Wechsler Adult Intelligence Scale-Revised (WAIS-R) developed by Wechsler (1981) was .81 (Naglieri & Bardos, 1997). Davis, Bardos, and Woodward (2006) found a significant relationship between the GAMA and the KBIT at $r = .59$. The GAMA also correlated at $r = .70$ and $r = .72$ with the Wonderlic Personnel Test (1992) and the Shipley Institute of Living Scale of Zachary (1991), respectively (Naglieri & Bardos, 1997).

6.3.1.7 Motivation for using GAMA

The major motivation for using the GAMA for this study was its demonstrated psychometric properties regarding reliability and validity. Its use of abstract design in measuring cognitive intelligence also minimises the effects of verbal comprehension, knowledge and verbal expression on the scores. This has advantages, especially if the instrument used with people using English as a second language, and also if employed on populations with diverse

educational, cultural and linguistic backgrounds. In addition, the GAMA is short (takes 25 minutes to administer) considering that the whole test battery took at least one and a half hours to administer in controlled settings.

6.3.2 Wong's Emotional Intelligence Scale (WEIS): Ability emotional intelligence

This section discusses the development, rationale, description, interpretation, psychometric properties, and motivation for the use of Wong's Emotional Intelligence Scale.

6.3.2.1 Development of the Wong's Emotional Intelligence Scale (WEIS)

The WEIS was developed by Wong et al. (2004) for the Chinese population but more generally for non-western countries (Wong et al., 2004).

6.3.2.2 Rationale for the inclusion of the WEIS

The WEIS is an ability-based forced-choice measure of emotional intelligence. It is designed to measure ability emotional intelligence along the subscales of emotional intelligence, which self emotional appraisal, other's emotional appraisal, use of emotion, and regulation of emotion. The fact that the WEIS is a forced choice measure makes it an ability-based measure of emotional intelligence (Wong et al., 2004).

6.3.2.3 Description of WEIS

The WEIS consists of 40 items. The first part consists of 20 scenarios and the candidate chooses one of the options that best describes their reaction to the scenario. The second part consists of 20 pairs of abilities, and the test taker chooses one of the two abilities that describes him/her. The choice of one scenario and one ability in each of the first and second parts is expected to distinguish emotionally intelligent individuals from less emotionally intelligent ones. The WEIS subscales are described below:

(a) Self emotional appraisal: the ability to understand emotions in oneself and to naturally express them. This subscale has 10 items. An example of an item is given below.

An example of a pair of abilities:

Ability (a): Comprehend the reasons of being happy or unhappy.

Ability (b): Learn how to repair a new electric appliance.

An example of a scenario:

When you are very down, you will:

- (a) Try to do something to make yourself feel better.*
- (b) Just ignore it because you know your emotion will be back to normal naturally.*

(b) Other's emotional appraisal: the ability to perceive and understand emotions in others.

This subscale has 10 items. An example of an item is given below.

An example of a pair of abilities:

Ability (a): Understand others' true feelings by observing their behaviours

Ability (b): Tolerate physical pain when compared to others

An example of a scenario:

Suppose you get an important award, you will:

- (a) Tell everyone and share your happiness with them.*
- (a) Tell and celebrate only with your family and closest friends.*

(c) Regulation of emotion: the ability to be open to feelings and regulate emotions in order to recover rapidly from emotional distress. This subscale has 10 items. An example of an item is given below.

An example of a pair of abilities:

Ability (a): mental arithmetic

Ability (b): control one's emotions

An example of a scenario:

When you face problems regarding your career or study, you will:

- (a) Talk to your friends to seek advice.*
- (b) Handle the problem yourself because everyone should deal with his/her own life.*

(d) Use of emotion: the ability to generate, use and feel emotions as necessary to communicate feelings or employ them in other cognitive processes to meet the performance expectations at hand. This subscale has 10 items. An example of the item is given below.

An example of a pair of abilities:

Ability (a): Concentrate on achieving one's goal

Ability (b): Learn how to sing a new song

An example of a pair of abilities is:

When a friend comes to you because s/he is not happy, you will:

(a) Share his/her feeling.

(b) Take him/her to do something s/he likes.

6.3.2.4 Administration of the WEIS

The WEIS takes 15 to 20 minutes to complete and can be administered to both individuals and groups. The WEIS is a paper-and-pencil test. Supervision may or may not be required because the test instruction is self-explanatory.

6.3.2.5 Interpretation of the WEIS

The WEIS has 40 items, 20 in each of the two parts. The maximum score of 40 shows highly developed emotional intelligence and lower scores indicate less developed emotional intelligence. Middle scores, for example a score of 20, indicate averagely developed emotional intelligence.

6.3.2.6 Validity and reliability of the WEIS

Wong et al. (2007) found the reliability and validity of the WEIS to be acceptable for research purposes. In addition, Wong et al. (2004) found the WEIS to have good convergent and discriminant validity.

6.3.2.7 Motivation for using the WEIS

The WEIS was proposed for this study because it is both reliable and valid. An internal consistency reliability coefficient of as high as .73 has been observed in research (Foo, Elfenbein, Tan, & Aik, 2004). The WIES is also parsimonious. The WEIS has also been found to have good construct validity (Husina, Santos, Ramosa, & Nordinb, 2013). Unlike the MSCEIT, which uses artistic expressions like colours and faces, which may differ across cultures, the WEIS is easy to administer and also easy to write because of its use of simple English (Wong et al., 2007).

6.3.3 The Assessing Emotions Scale (AES): Trait emotional intelligence

This section discusses the development, rationale, description, interpretation, psychometric properties, and motivation for the use of the AES.

6.3.3.1 Development of the AES

The AES was developed by Schutte et al. (1998) from Mayer and Salovey's (1990) original conceptualisation of emotional intelligence.

6.3.3.2 The rationale for the inclusion of the AES

The AES was suggested because it is based on the trait model of emotional intelligence (Schutte et al., 2009). The scale is one of the most widely researched tools with proven psychometric properties regarding reliability and validity (Schutte et al., 2009). It was also proposed because it is distinct from the tests measuring ability and trait emotional intelligence.

6.3.3.3 Description of the AES

The AES is based on Salovey and Mayer's (1990) original model of emotional intelligence in which emotional intelligence consists of perception of emotion, managing own emotions, managing others' emotions, and utilisation of emotion. (Schutte et al., 2009). The AES consists of 33 items with responses recorded on a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). Items 5, 28, and 33 are reverse-coded. The number of items and example questions for each of the subscales are given below.

(a) Perception of Emotion (10 items). An example of an item for this subscale:

I find it hard to understand the non-verbal messages of other people.

(b) Managing Own Emotions (nine items). An example of an item for this subscale:

When I am faced with obstacles, I remember times I faced similar obstacles and overcame them.

(c) Managing Others' Emotions (eight items). An example of an item for this subscale:

I know when to speak about my personal problems to others.

(d) Utilisation of Emotion (six items). An example of an item for this subscale:

When my mood changes, I see new possibilities

6.3.3.4 Administration of the AES

The AES can be administered to both individuals and groups. Respondents rate themselves on each item using a five-point scale. The test requires approximately eight minutes of testing time and the instructions for the test are self-explanatory.

6.3.3.5 Interpretation of the AES

An individual's total emotional intelligence score is calculated by summing the responses to individual questions (Schutte et al., 1998). The scores range from 33 to 165, with higher scores indicating more characteristic emotional intelligence. Emotional intelligence is reported on four subscales, namely, perception of emotion, managing own emotion, managing others' emotion, and utilisation of emotion (Schutte et al., 2009).

6.3.3.6 Validity and reliability of the AES

The development sample showed internal consistency of 0.90 as measured by Cronbach's alpha, and a test-retest reliability of .78 for total scores (Schutte et al., 1998). In 27 subsequent studies quoted by Schutte et al. (2009) an average alpha = .87 was found. The divergent validity of the AES, as measured by its relationship with the Five Factor personality model, has generally been found to range between .09 and .54 (Bastian, Burns, & Nettelbeck, 2005; Bracket & Mayer, 2003; Schutte et al., 1998). This indicates that emotional intelligence as measured by the AES has good construct validity.

6.3.3.7 Motivation for using the AES

The AES is suggested because it is widely used (over 200 studies) as a trait-based emotional intelligence measure (Schutte et al., 2009). In addition, it has fairly robust psychometric properties regarding reliability and validity. Kirk, Schutte, and Hine (2007) also show that the AES is not affected by social desirability responses. In addition, the AES is parsimonious, making it a suitable trait measure of emotional intelligence for the present study.

6.3.4 The Myers-Briggs Type Indicator (MBTI) Form M: Personality

This section discusses the development, rationale, description, interpretation, psychometric properties and motivation for the use of the Myers-Briggs Type Indicator (MBTI) Form M (Myers, et al., 1998).

6.3.4.1 *Development of the Myers-Briggs Type Indicator (MBTI) Form M*

The MBTI was developed by Myers and Briggs (Myers, 1962) and is based on Jung's theory of psychological types (Chen et al., 2009). The MBTI Form M was developed by Myers et. al. (1998).

6.3.4.2 *The rationale for the inclusion of the MBTI*

The MBTI was proposed because it is one of the personality measures most widely used for assessment for people development. Although the MBTI is not a selection tool per se, it is proposed to investigate its potential use for personnel selection.

6.3.4.3 *Description of the MBTI*

The MBTI Form M (Myers et. al., 1998) is a self-report personality measure, based on Carl Jung's theory of psychological types (Jung, 1921). It is a forced-choice personality inventory, the responses to which are recorded on a binary scale. The MBTI Form M consists 93 items. Its results can be interpreted along four bipolar scales which are described below:

Extraversion–Introversion (E/I): measures how an individual distributes their energy to the outer world of people or their inner world of ideas.

Sensing–Intuition (S/N): how one prefers to gather information and focus predominantly on the five senses as opposed to insight.

Thinking–Feeling (T/F): measures whether an individual is likely to make decisions based on logical analysis, or on the need for affiliation, emotional consideration and warmth.

Judging–Perceiving (J/P): measures how an individual chooses to approach life and work with order and rules as opposed to flexibility and spontaneity.

6.3.4.4 Administration of the MBTI

The MBTI is easy to administer since instructions are self-explanatory. It can be administered to individuals and groups and takes between 15 and 20 minutes to complete. Responses are recorded on a binary scale, that is, candidates can choose either “A” or “B” options.

6.3.4.5 Interpretation of the MBTI

The MBTI provide eight raw scores, namely, extroversion, introversion, sensing, intuition, thinking, feeling, judging and perceiving. These eight scores can sort individuals into 16 possible types, which can then be characterised in many ways, for example by occupational and organisational traits, learning styles, educational traits, decision-making traits and the like (Myers & Myers 1995; Myers et al., 1998). These are described in Table 4.2 in Chapter 4.

6.3.4.6 Validity and reliability of the (MBTI)

The internal consistency and test-retest reliability of the MBTI have been found to be as high as .90 for samples of different employment statuses and different age groups (Myers et al., 1998, Myers & Myers, 2009). Confirmatory factor analysis supports the existence of the four factors measured by the MBTI (Tabachnick & Fidell, 2001). Research demonstrates that the MBTI has good convergent validity with CPI 260, FIRO-B and the NEO-PI (Myers & Myers, 2009).

6.3.4.7 Motivation for using the MBTI

The major motivation for the inclusion of the MBTI in the assessment battery is its relevance in industrial and organisational interventions, which include education, career development, organisational behaviour, and group functioning and team development, which invariably leads to job performance (Chen et al., 2009; Quenk, 1999). The inclusion of the MBTI is justified because it most widely used personality test with non-psychiatric populations (Gregory, 2004).

6.3.5 Williams and Anderson’s Job Performance Scale

This section discusses the development, rationale, description, interpretation, psychometric properties and motivation for the use of Williams and Anderson’s (1991) Job Performance Scale.

6.3.5.1 *Development of Williams and Anderson's (1991) job performance scale*

Williams and Anderson (1991) developed the job performance scale measures job performance along three subscales, which include organisational citizenship behaviours directed at individual employees (OCBI), organisational citizenship behaviours directed to the organisation (OCBO), and in-role behaviours (task performance)

6.3.5.2 *The rationale for the inclusion of Williams and Anderson's (1991) job performance scale*

The job performance scale of Williams and Anderson (1991) measures job performance on three facets. These are task performance, OCBI, and OCBO. The motivation for including the scale stems from the fact that it appears to represent the whole domain of performance (Bozionelos & Singh, 2017).

6.3.5.3 *Description of Williams and Anderson's (1991) Job performance scale*

Williams and Anderson's (1991) job performance scale consists of 21 items, with seven items in each of the task performance, OCBI, and OCBO subscales. Its responses are recorded on a five-point scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Items 6, 7, 17, 18, and 19 are reverse-coded. The number of items and example questions for each of the subscales are given below.

Task Performance (seven items): An example of an item for this subscale:

Adequately completes assigned duties

OCBI (seven items): An example of an item for this subscale:

Helps others who have been absent

OCBO: (seven items): An example of an item for this subscale:

Takes undeserved work breaks

6.3.5.4 Administration of Williams and Anderson's (1991) job performance scale

The job performance scale can be administered to supervisors and peers. Instructions are self-explanatory and therefore simple to follow. The questionnaire takes approximately five minutes to complete.

6.3.5.5 Interpretation of Williams and Anderson's (1991) job performance scale

Each of the statements on the scale has a possible score of between one and five. Each of the subscales therefore has a possible score between five and 35. The overall score for the subscales is obtained by summing the total responses. Scores of 4 and 5 indicate good performance, 1 and 2 indicate underperformance, and 3 indicates mediocre performance.

6.3.5.6 Validity and reliability of Williams and Anderson's (1991) job performance scale

Williams and Anderson (1991) report Cronbach's alpha reliabilities of .91, .88, and .75 respectively for OCBIs, OCBOs and in-role behaviours (task performance). Organ, Podsakoff, MacKenzie, and MacKenzie (2006) also support these reliabilities. Organ et al. (2006) report that the scale shows good factor structure and reasonable content validity.

6.3.5.7 Motivation for using Williams and Anderson's (1991) job performance scale

Apart from its validity and reliability, Williams and Anderson's (1991) Job Performance scale is strongly suggested because it is parsimonious. It covers all facets of job performance, and it takes a relatively short time to complete.

6.3.6 Limitations of the psychometric test battery

The WEIS has not been tested in personnel selection settings (Wong et al., 2007). Thus, the study seeks to apply it to the personnel selection context to determine the level of practical utility of the measure in personnel selection contexts. In addition, the AES and MBTI are self-report measures. Such measures only provide information about how the individuals perceive themselves at a particular point in time and therefore, depend on the willingness of the candidate to be honest. Moreover, the MBTI has had limited use in personnel selection contexts. However, to the extent that it measures occupational outcomes like teamwork and personal development, it may have practical utility in predicting the trainability of individuals at the personnel selection stage. This may save organisational resources by selecting only trainable individuals.

The choice of the instruments used for the study was made after a review of their psychometric properties in predicting job performance outcomes. Accordingly, the instruments have been found to have acceptable reliability and validity.

Having discussed the limitations of the psychometric test battery, the next section outlines ethical considerations for the study.

6.4 ETHICAL CONSIDERATIONS

The researcher adhered to the following ethical considerations concerning the empirical study:

- The researcher adhered to the Research Ethics Policy of the University of South Africa.
- Approval for the research was obtained from the Research Ethics Committee of the Department of Industrial and Organisational Psychology (Appendix 1).
- Permission to conduct the research was obtained from the four organisations (Appendix 2).
- Voluntary participation was obtained by obtaining informed consent from research participants to participate in the study and to have the study published in a scientific journal (Appendices 4 and 5).
- The utmost confidentiality was maintained with regard to people's names and results by removing the names of participants in the data that were sent to the statisticians who assisted with analysis.
- Bias was avoided and fairness maintained by using tests with demonstrable psychometric properties in terms of reliability and validity.
- The maximum practical level of participant anonymity was assured.
- The literature relevant to the study was used.
- The research was conducted within recognised parameters.
- All sources from which information and literature were obtained were acknowledged.
- Where the researcher lacked expertise, for example on data analysis, experts in the relevant areas were consulted.
- The participants were informed about the reasons for, and the results of, the research.
- The thesis was compiled and all information reported according to prescribed guidelines.

The following section outlines the administration of the test battery.

6.5 ADMINISTRATION OF THE PSYCHOMETRIC BATTERY

The first stage involved seeking permission to administer the battery from potential participant organisations. The researcher sought consent from the relevant persons at the participating organisations, through the human resources department, or any other contact persons as determined by the participating organisations. Participants were recruited via an email message. To maximise the response rate, the researcher indicated that each respondent would be provided with a personal development report. This technique seems to be important since people are motivated to learn more about their behaviour (Alreck & Settle, 2004). Confidentiality was also stressed in line with Fink (1995). The researcher sought permission to administer the job performance scale from supervisors.

The data were collected in sessions of at most 20 people each. This number was chosen to enable the test administrator to control the group and thus to increase the credibility of the resultant scores. During each session, participants were provided with an informed consent letter which they were asked to sign, indicating their consent to participate in the study for research purposes (Appendix 4). After that, sociodemographic information which included name, age, gender, ethnicity, job title, ethnicity, job type, the highest level of education, and length of job tenure inside and outside the company was collected using a short questionnaire (Appendix 3).

Administration of the test battery started with assessment deemed to demand cognitive resources to comply with the demands for test difficulty. The battery was administered in the following order:

- GAMA
- WEIS
- AES
- MBTI

The performance data were collected concurrently from the 299 supervisors to save time. The supervisors were contacted, via email, to provide their subordinates' (candidates) performance information using Williams and Anderson's (1991) performance scale. Supervisors also signed informed consent forms and returned the completed forms in hard

and soft copy, depending on their preference (Appendix 5). The performance data and the test scores were matched for each of the respondents.

6.6 SCORING OF THE PSYCHOMETRIC BATTERY

Psychometric tests scores were captured in Microsoft Excel by experienced data capture clerks. Data were then exported into SAS version 9.4 (SAS, 2013), which was then used to perform descriptive and inferential statistics.

6.7 FORMULATION OF RESEARCH HYPOTHESES

A hypothesis is a statement of the expected relationship between either two or more variables (Kumar, 2005). A null hypothesis is a hypothesis, which assumes that there is no statistical significance for an observation under study (Kumar, 2005; Rosenthal & Rosnow, 2009). An alternative hypothesis is the opposite of the null hypothesis in that it assumes statistical significance exist between a set of variables (Kumar, 2005). The research hypotheses stated in Table 6.7 were formulated to address empirical research questions for the study.

Table 6.7

Research Hypotheses

Research aim	Research hypothesis	Statistical Procedure.
Research aim 1: To empirically investigate the statistical relationship between cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality, and job performance, as manifested in a sample of respondents in the Zimbabwean organisational environment.	H1: There is a statistically significant positive correlation between each of the predictor variables of cognitive intelligence, trait emotional intelligence, ability emotional intelligence, and personality and the criterion of job performance.	Correlation analysis
Research aim 2: To determine whether the predictor variables of cognitive intelligence, ability	H2: The predictor variables of cognitive intelligence, ability emotional intelligence, trait	Structural equation modelling

Research aim	Research hypothesis	Statistical Procedure.
emotional intelligence, trait emotional intelligence, and personality significantly predict job performance.	emotional intelligence, and personality significantly predict job performance.	(SEM) and path analysis
Research aim 3: Based on the statistical relationship between cognitive intelligence, ability emotional intelligence, trait emotional intelligence, personality, and job performance, to determine the elements of the empirically manifested personnel selection model, and how the proposed empirical model compares with the theoretically hypothesised model.	H3: The theoretically hypothesised personnel selection model has a good fit with the empirically manifested personnel selection model.	Structural equation modelling (SEM)
Research aim 4: To determine whether there are interaction (moderating) effects between the biographical variables (age, gender, job tenure, and job type) and cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality in predicting job performance.	H4: There is a significant interaction effect between the predictor variables (cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality, respectively) and the sociodemographic variables of age, gender, job tenure, and job type in predicting job performance.	Stepwise regression and Hierarchical moderated regression analysis
Research aim 5: To empirically investigate whether individuals from different ages, genders, job tenure, and job types differ with regard to their cognitive intelligence, ability emotional intelligence, and trait emotional intelligence, and levels of job performance.	H5: Individuals from different age, gender, job tenure, and job type groups differ significantly regarding their cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality, respective and job performance.	Tests for significant mean differences.

6.8 STATISTICAL PROCESSING OF DATA

This section outlines the steps taken to statistically process data.

6.8.1 Overview of the statistical processing of data

The statistical processing of the data was done in three phases. The first phase entailed conducting a preliminary statistical analysis which included testing for the common method variance and assessing the validity and reliability of the measurement model. The first phase also entailed the computation of descriptive statistics and these included tests of assumptions (normality, skewness, and kurtosis), means, standard deviations and frequency distributions. The second phase involved performing correlational analyses, using the Spearman's correlation. The third and final phase encompassed computing inferential statistics, which included structural equation modelling, stepwise multiple regression analysis, hierarchical moderated regression analysis and tests for significant mean differences.

Table 6.8 summarises the steps taken for the statistical processing of the data.

Table 6.8

Statistical Processing of Data

Phase	Statistical analysis	Statistical procedure
1	Descriptive statistics	Step 1: Testing for common method variance and measurement model validity and reliability. Step 2: Frequencies, Means, standard deviations, skewness and kurtosis; frequencies of MBTI types. Step 3: Tests for assumptions
2	Correlational analysis	Correlation statistics (Spearman's correlation)
3	Inferential statistical analyses	Stage 1: Structural equation modelling and path analysis Stage 2: Stepwise regression analysis and hierarchical moderated regression analysis Stage 3: Tests for significant mean differences.

The processes undertaken for data analysis are described in the following section.

6.8.2 Phase 1: Descriptive statistics

This section outlines and discusses the descriptive statistics computed as part of efforts to describe the sample characteristics. The descriptive statistics, which include frequencies, means, standard deviations, skewness and kurtosis, were computed. Tests of assumptions for the data, that is, tests for normality, linearity, collinearity, singularity, multicollinearity, ratio of cases to independent variables, and outlier analysis are described in this section. Since some of the questionnaires were self-reports, this section also discusses the testing for the common method variance for the measurement instruments, which is discussed in the next section.

6.8.2.1 Testing for common method variance, measurement model validity and internal consistency reliability

Owing to the self-report nature of the scales and cross sectional design, the possibility of common method variance had to be tested first. Tehseen, Ramayah, and Sajilan (2017) define common method variance as the bias caused by the manner in which data are collected rather than the variance attributed to the constructs represented by the measuring instruments. Causes of the common method variance in self-report questionnaires may include such things as the use of one item type, use of the same respondents to obtain responses on both the independent and dependent variables, use of one item characteristic type, as well as social desirability or impression management by respondents, and respondents' tendency to produce consistent answers across survey questions (Tehseen et al., 2017). Thus, common method variance causes spurious inter-correlations among factors (Yang, & Mathew, 2018). When using a multifactor measuring instrument, common method variance occurs when the overall factor explains the majority of the variance (Tehseen et al., 2017).

Researchers can use either procedural or statistical remedies to control for common method variance (Tehseen et al., 2017). According to Tehseen et al. (2017), procedural remedies include the following:

- Getting responses to the dependent and independent variables from different sources.
- Protecting respondents' anonymity so that they exercise honesty in responding to the questionnaires.

- Introducing a time lag between the collection of the responses for the dependent and independent variables in situations where collecting responses for the dependent and independent variables from different sources is difficult.
- Using different item types (Likert type and open-ended questions) to collect responses to the dependent and independent variables.
- Constructing items carefully to avoid ambiguity.

The researcher managed to collect responses to the dependent and independent variables from different sources and managed to protect the anonymity of respondents. In line with the foregoing statement, the responses to the dependent variable (job performance) were collected from the supervisors, while responses to the independent variables (the predictor variables) were collected from the subordinates. However, the research could not prevent all procedural causes of common method variance, which meant that statistical remedies had to be used.

The researcher used Harman's single-factor test and confirmatory factor analysis (CFA one-factor solution) to test for common method variance (Tehseen et al., 2017). Harman's single-factor test is a post hoc statistical test performed to determine whether a single factor is accountable for the variance (>50%) in the data (Sikolia, Twitchell, & Sagers, 2016). Practically, this test is performed by loading all test items into a factor analysis to see if one factor becomes accountable for the covariance among the measures (Tehseen et al., 2017). Thus, common method variance occurs if one factor is responsible for the covariance among the measures. If no single factor is accountable for the covariance among the measures, it signifies the absence of common method variance (Tehseen et al., 2017).

In terms of the measurement model validity, confirmatory factor analysis (CFA) was performed to assess the construct validity of each scale. CFA fit indices included the root mean square error of approximation (RMSEA), the standardised root mean square residual (SRMR), the comparative fit index (CFI). Table 6.9 below shows the threshold values for acceptable CFA fit indices according to Kock (2015) and Pallant (2013).

Table 6.9

The Acceptable Levels for Model Fit Statistics

Test statistic	Acceptable level (model acceptance)
RMSEA	$\leq .10$ (moderate acceptable)
	$\leq .08$ (good fit)
SRMR	$\leq .10$ (moderate acceptable)
	$\leq .08$ (good fit)
CFI	$\geq .90$ (good fit)

In terms of reliability, the Cronbach' alpha and composite reliabilities (internal consistency) were used to determine the scale reliabilities. Composite reliability is a less biased form of reliability than Cronbach's alpha (Peterson & Kim, 2013). Reliability coefficients of equal to or greater than .70 are considered generally good (Costa, Van, Abbott, & Krass, 2015), while reliability coefficients of .50 may also be acceptable for research (Taber, 2018).

6.8.2.1.1 Frequencies: Means, standard deviations, skewness and kurtosis

Data frequencies, means (arithmetic averages) and standard deviations (variability of scores from the mean) were used to describe sample characteristics. Skewness, which refers to the degree of symmetry of the distribution of a data set, was also used to describe the data (Weiner & Greene, 2008). Skewness values of not more than 1 but not less than -1 are said to be normal (Pallant, 2013). In addition, kurtosis or the degree to which a distribution of data is tall/peaked or flat in relation to the standard normal distribution was also computed (Weiner & Greene, 2008). Kurtosis values of not more than 3 but not less than -3 are said to be acceptable (Pallant, 2013).

6.8.2.1.2 Tests for assumptions

The objective of research is to describe the population parameters using sample characteristics (Rosenthal & Rosnow, 2009). This is because in real life sample characteristics will never match population characteristics. Thus, certain cautionary and statistical procedures

have to be performed to ensure that the data from research can be confidently used to make conclusions about the population using the sample data. Accordingly, the following tests of assumptions were performed.

a) The accuracy of data used

Pursuant to data capture, the data were cleaned to ensure that there were no cases of miscoding. In addition, the researcher scrutinised the data in terms of the minimum and maximum possible scores for each of the instruments used. Only fully completed questionnaires and tests were considered acceptable and usable.

b) Ratio of cases to independent variables

There is generally a minimum number of cases that should be used in order to perform certain multivariate inferential statistical analysis (Austin & Steyerberg, 2015; MacCallum, Browne, & Sugawara, 1996). Research which test multiple independent variables requires a minimum sample size for a corresponding number of dependent variables. For the present study, the formula used to determine the minimum sample size was $n \geq 50 + 8m$, where m represents the number of independent variables (MacCallum et al., 1996). For the present study, the above equation corresponds to a sample size of $n = 82$, which is way below the sample size of $N = 299$. Thus, the current sample of $N = 299$ was regarded as acceptable.

c) Outliers

Srinivasan and Lohith (2017) define outliers as extreme values on particular items. These are normally defined as values that are at least three standard deviations from the mean. In performing correlational and inferential statistics, outliers were excluded.

d) Normality, linearity and homoscedasticity

Inferential statistics assume that sample data are normally distributed (Srinivasan & Lohith, 2017). Normality was tested using the Shapiro-Wilk and Kolmogorov-Smirnov statistical tests SAS Version 9.4 (SAS, 2013). A p value which is greater than the applicable alpha cut-off point ($\leq .05$) assumes that data did not come from a normally distributed population, justifying the use of non-parametric tests for analysis of such data (Ho & Yu, 2015).

Homoscedasticity is a requirement for one to perform inferential statistics like regression (Srinivasan & Lohith, 2017). Homoscedasticity assumes that the variance of score values around the regression line is the same for all score values of the predictor variable (Srinivasan & Lohith, 2017). In other words, the variability of scores of the dependent variable is the same as the variability of scores of independent variables. Homoscedasticity was tested by merely looking to see the degree to which scores were spread from each other and from the regression line.

(e) Multicollinearity and singularity

Multicollinearity and singularity occur when explanatory or independent variables (IVs) are highly correlated with each other (Hutcheson & Sofroniou, 1999). The cut-off point for multicollinearity is $r \geq .80$ (Cohen, Cohen, West, & Aiken, 2013). According to Chen et al. (2013), singularity occurs if there is a perfect correlation ($r = 1.00$) between two or more variables. The presence of multicollinearity and singularity means that the IVs are redundant with each other. The researcher tested for multicollinearity and singularity by checking correlations between the independent variables.

6.8.3 Phase II: Correlation statistics

Research hypothesis H1 was tested using correlational statistics and was stated as follows:

H1: There is a statistically significant positive correlation between each of the predictor variables of cognitive intelligence, trait emotional intelligence, ability emotional intelligence, and personality and the criterion of job performance.

Correlation measures the degree of the statistical relationship between two variables (Schumacker & Lomax, 2016). Correlational statistics were performed using the Spearman's correlation in SAS Version 9.4 (SAS, 2013). The correlation coefficient ranges from -1.00 to 1.00, with a coefficient closer to -1.00 and 1.00 indicating the strongest negative and positive correlation, respectively. Hypothesis H1 was tested using the Spearman's correlation. In rejecting or failing to reject a null hypothesis, a researcher can make two types of errors and these are Type I and Type II errors (Tredoux & Durrheim, 2002). Type I and Type II errors, together with the practical effect sizes for correlational statistics will be discussed in detail later in this section.

6.8.4 Phase III: Inferential statistical analyses

In this section, inferential statistics used are discussed first. Thereafter, the level of significance for the different inferential statistics will be discussed, together with effect sizes for the different inferential statistics.

6.8.4.1 Description of inferential statistics used

The researcher computed inferential statistics in order to draw conclusions about the population using sample data. The following inferential statistical analysis steps were followed:

- Step 1: Structural equation modelling (SEM) (which included multiple regression analysis) was performed to build and test the empirically manifested elements of the hypothetical personnel selection model and to assess the fit between the empirical and theoretical models (hypotheses H 2 and H3).
- Step 2: Moderation/interaction effects were tested to identify sociodemographic variables that moderated the relationship between the predictor (independent variables) and the job performance criterion (dependent variable). The first step included stepwise regression analysis to identify sociodemographic variables that significantly predicted job performance. The second step included performing hierarchical moderated regression analyses, to test whether the sociodemographic variables that significantly predicted job performance had interaction effects with cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality in predicting job performance (hypothesis H4).
- Step 3: Tests were conducted for significant mean differences. This assisted in investigating empirically whether there were significant differences (in the level of predictor variables) between the sociodemographic variable groupings (hypothesis H5).

The inferential statistics used are discussed in the next section.

6.8.4.2 Structural equation modelling

The researcher used structural equation modelling to test hypotheses H2 and H3.

Research hypotheses H2 and H3 were stated as follows:

H2: The predictor variables of cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality significantly predict job performance.

H3: The theoretically hypothesised personnel selection model has a good fit with the empirically manifested personnel selection model.

Structural equation modelling (SEM) is a multivariate procedure and a form of confirmatory factor analysis (CFA) used to investigate the relationship between one or more independent variables and one or more dependent variables (Schumacker & Lomax, 2016). Alavifar, Karimimalayer, and Anuar (2012) have defined SEM or path analysis as a multivariate technique used to test multiple dependent variables using a number of regression equations simultaneously. Both the independent and the dependent variables can be either continuous or discrete (Schumacker & Lomax, 2016).

SEM is also used to investigate the relationship between measured and latent variables. Measured or observed variables are variables that can be seen. Latent variables are the construct variables that cannot be seen, but are inferred from measured variables (Schumacker & Lomax, 2016). For the present study, cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality constituted the latent variables. The observed variables represent the data, subscales or variables that can be sub-classified with other variables of similar types and which together load onto the latent variable (Schumacker & Lomax, 2016). The extent to which observed variables load significantly onto the respective latent variables indicates SEM model fit.

SEM also consists of two parts, that is, the measurement model (relationships between measured and latent variables) and a structural/prediction model (the relationships between the latent variables only) (Schumacker & Lomax, 2016).

To determine the construct validity of the measurement model, the researcher performed the one-factor CFA solution (using the CALIS procedure of SAS version 9.4; SAS, 2013) with all subscales (observed variables) of the predictor variables (cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality) loading onto one factor. The one-factor CFA solution was performed to determine whether the CFA fit indices showed measurement model fit. Having failed to satisfy the measurement model fit criteria, a

multifactor CFA solution was run to determine whether the subscales or factors of the predictor variables loaded onto their respective latent variables and also to determine whether the data from the measurement scales showed model fit. Consequently, the modified model, which was optimised using the maximum likelihood estimation method (SAS version 9.4; SAS, 2013), did indeed show model fit. The construct validity of the measurement model is shown in Table 7.4 (Chapter 7).

Once the construct validity of the measurement model was determined, the researcher ran the prediction or structural multiple regression models using SEM to determine the amount of variance explained by the predictor variables in predicting job performance.

6.8.4.3 Stepwise regression analysis

Before performing hierarchical moderated regression analysis, it was important to determine the sociodemographic variables that significantly predicted job performance, as only significant sociodemographic variables could then be used in the hierarchical moderated regression analyses. The binary logistic procedure with backward elimination (IBM SPSS, version 22.0; IBM SPSS, 2013) was used to perform stepwise logistic regression analysis because the sociodemographic variables were treated as dichotomous subgroups each. In performing the stepwise regression with backward elimination (likelihood ratio), statistical procedure starts by computing multiple regression analysis with all the available variables, then the system automatically drops the weakest and non-significant predictors at each successive step. The analysis of the regression model statistics assists in determining the overall regression model fit, the path loadings of the predictor variables onto the criterion variable, and the model's shared variance in explaining the criterion variable.

The drawback of stepwise regression analysis is that predictor variables may have multicollinearity, which causes the regression solution to unnecessarily dump variables into the model (Olusegun, Dikko, & Gulumbe, 2015). Despite the disadvantages, the stepwise regression technique was used because it is fast and efficient, and it assists in identifying significant predictor variables for use in the next stage, the hierarchical moderated regression analysis (Zhang, 2016).

6.8.4.4 Hierarchical moderated regression

Hierarchical moderated regression analysis was used to test Hypothesis 4, which was stated as follows:

H4: There is a significant interaction effect between the predictor variables (cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality, respectively) and the sociodemographic variables of age, gender, job tenure, and job type in predicting job performance.

Hierarchical moderated multiple regression is a multivariate statistical procedure used to investigate the interaction between two independent variables in predicting a dependent variable (Tredoux & Durrheim, 2002). Hierarchical moderated regression analysis assists in assessing the collective contribution (how two independent variables interact) of independent variables in influencing or predicting the dependent variable. This type of regression analysis produces an interaction model, which determines the change in the shared variance of the two independent variables and is denoted by ΔR^2 (Tredoux & Durrheim, 2002). In terms of the study and using the PROCESS procedure (Hayes, 2018) in SAS version 9.4 (SAS, 2013), hierarchical moderated regression analysis was performed to determine whether the sociodemographic variables (age, gender, job tenure, and job type) moderated the predictive power of cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality in predicting job performance. For personality, hierarchical moderated regression analysis was performed to determine the potential moderation effect of each of the sociodemographic variables on each of the eight dichotomies of the MBTI (extraversion-introversion, thinking-feeling, sensing-intuition, judging-perceiving, intuition-thinking, intuition-feeling, sensing-thinking, and sensing-feeling) in predicting job performance.

6.8.4.5 Tests for significant mean differences.

Tests for significance mean differences were performed to test hypothesis H5. Hypothesis H5 was stated as follows:

H5: Individuals from different age, gender, job tenure, and job type groups differ significantly regarding their cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality, respective and job performance.

Differences in sociodemographic variables regarding respondents' levels of cognitive intelligence, emotional intelligence (ability and trait), and job performance were analysed using tests of significant mean differences. In selecting the appropriate test statistics to use, it was important to first perform tests of assumptions. Parametric statistics assume that the data are

normally distributed and are recorded on a ratio or interval scale (Ho & Yu, 2015; Srinivasan & Lohith, 2017). Data from the GAMA (cognitive intelligence tests) did not satisfy the assumption of normality, meaning that significant mean differences test statistics had to be computed using non-parametric tests. Thus, the researcher used the Wilcoxon signed-rank test (SAS 9.4; SAS, 2013) to test for significant mean differences. The Wilcoxon signed-rank test first ranks the means of each of the variables and then compares the ranked means to determine whether there are significant differences.

6.8.5 Level of significance

As mentioned earlier, in rejecting or failing to reject a null hypothesis, a researcher can make two types of errors – Type I and Type II errors (Tredoux & Durrheim, 2002). A Type I error occurs when a researcher rejects a null hypothesis when in fact it should not be rejected. A Type II error occurs when a researcher fails to reject a null hypothesis when it should in fact be rejected. The probability of Type I and Type II errors occurring may be reduced by setting a very conservative level of significance. The significance level refers to significance in terms of giving specific probability beyond which a null hypothesis is rejected (Huck, 2016). The widely used statistical significance is $p \leq .05$ as a rule of thumb (Miah, 2016). This means that if the study is replicated, it will yield a similar result in 95% of times. Thus, the statistical significance cut-off of $p \leq .05$ was adopted for all statistical tests.

6.8.5.1 Level of significance for correlational statistics

The magnitude of significant correlations ($p \leq .05$) between variables was interpreted in terms of practical effect size or practical significance (Rashid, Mondol, Rahman, & Noman, 2016). Correlation coefficients ranging from $r = .10$ to $r = .29$ are said to have small practical effect, while coefficients of $.30 \leq r \leq .49$ are regarded as of moderate practical effect and correlation coefficients of $r \geq .50$ are said to have large practical effect (Badoud et al., 2015; Rashid et al., 2016).

6.8.5.2 Level of significance for SEM, stepwise and hierarchical moderated regression

Hypotheses H1 and H2 were tested using SEM. For SEM (which utilises CFA and path analysis), the following are the guidelines for effect sizes provided by Cohen (1992):

- $R^2 \geq .02$ (small effect size)
- $R^2 \geq .13$ (moderate effect size)

- $R^2 \geq .26$ (large effect size)

Statistical significance for stepwise and hierarchical moderated regression was tested using the ANOVA (F). In terms of variance, the R^2 and a less biased statistic, the adjusted R^2 , were computed to determine the amount of variance (in percentage terms) in the dependent variable (criterion) explained by the independent variables (predictor), with lower percentages indicating lower variance explained (Hair, Black, Babin, & Anderson, 2010). Generally, as more variables are added to a regression model, the R^2 value increases because of the incremental (ΔR^2) variance in the dependent variables explained by the increased number of independent variables (Hair et al., 2010).

Hypothesis H4 was tested using hierarchical moderated regression analysis. This analysis involved testing for the interaction between each of the independent variables and the dependent variables in predicting job performance to determine whether the interactions were significant. If significant, this analysis produced the R^2 -change (ΔR^2) statistic, which showed the incremental change in the variance of the relationship between the predictor and criterion variables explained by the interaction caused by the sociodemographic variables.

Cohen's f^2 was used to determine the effect size of the moderated regression analysis (Cohen, Cohen et al., 2013). The f^2 is a measure of the amount of systematic variance associated with a moderator variable in association with the unexplained variance in the criterion (Cohen et al., 2013). Cohen et al. (2013) provide the following guidelines for effect sizes for moderated regression analysis:

- $f^2 \geq .02$ (small effect size)
- $f^2 \geq .15$ (moderate effect size)
- $f^2 \geq .35$ (large effect size)

6.8.5.3 Level of significance for tests of significance mean differences

The level of significance for testing significant mean differences was set at $p \leq .05$. The practical effect size of the significant mean differences was determined using the Cohen's d test (Cohen et al., 2013). Cohen et al. (2013) provide the following guidelines for practical effect sizes:

- $d \geq .01$ (very small effect size)
- $d \geq .20$ (small effect size)
- $d \geq .50$ (moderate effect size)
- $d \geq .80$ (large effect size)
- $d \geq 1.20$ (very large effect size)

6.8.6 Goodness of fit statistics: Structural equation modelling

In terms of goodness of fit, the following fit indices were considered:

- Chi-square test
- Root mean square error of approximation (RMSEA)
- Standardised root mean square residual (SRMR)
- Comparative fit index (CFI)

The chi-square is used to test if the observed data and the predicted data are differentiated, with smaller chi-square values indicating better model fit (Balakrishnan, Voinov, & Nikulin, 2013). In terms of the fit indices, the RMSEA and SRMR should be $\leq .10$ (model acceptance) and $\leq .08$ (good fit), and the comparative fit index (CFI) should be $\geq .90$ or higher (Pallant, 2013).

These fit indices were computed using SAS version 9.4 (SAS, 2013).

6.9 CHAPTER SUMMARY

The first six steps of the empirical investigation were discussed in this chapter. These included a description of the sample, the choice of and motivation for the psychometric test battery and the job the performance measurement instrument, as well as the administration and scoring of the test battery. Hypotheses addressing the research questions were also formulated. The chapter culminated with a discussion and explanation of the methods used to process statistical data. Chapter 7 reports the research results.

CHAPTER 7: RESEARCH RESULTS

This chapter reports the results of the statistical analyses applied for testing the research hypotheses. Descriptive, correlational, and inferential statistics were computed to inform the research results. The first section of the chapter outlines the preliminary statistical analyses.

7.1 PRELIMINARY STATISTICAL ANALYSES

This section discusses the statistical procedures used to test for the common method variance and to ascertain the measurement model validity and internal consistency reliability of the measures.

7.1.1 Testing for common method variance

As mentioned earlier, the self-report nature of the scales and cross-sectional design made it necessary to test for the common method variance. Accordingly, the researcher used the Harman's one-factor test and confirmatory factor analysis (CFA one-factor solution) to test for the possibility of common method variance (Tehseen et al., 2017). As mentioned in Chapter 6, and in terms of the CFA fit indices, the RMSEA and SRMR should be $\leq .10$ (model acceptance) and $\leq .08$ (good fit), and the comparative fit index (CFI) should be $\geq .90$ or higher (Pallant, 2013). In addition, percentages of $>.50\%$ (Harman's one-factor test) and a CFA one factor solution with good model fit imply the presence of common method bias (Sikolia et al., 2016). Table 7.1 shows the results of testing for the common method variance for the WEIS, AES, Job Performance Scale, and the MBTI. The GAMA was excluded because it was a timed test and as a result, had a number of missing responses.

Table 7.1

Testing for the Common Method Variance

Measurement instrument	Harman's one-factor test: percentage variance explained by a single factor	One-factor solution (confirmatory factor analysis)
Assessing Emotions Scale (AES)	8.59%	Chi-square = 1043.37***/df = 428 SRMR = .06 RMSEA = .07 CFI = .78
Job Performance Scale (JPS)	5.53%	Chi-square = 424.36***/df = 186 SRMR = .06 RMSEA = .07 CFI = .86
Myers-Brigs Type Indicator (MBTI)	9.16%	Chi-square = /df = 12170.18***/df = 4185 SRMR = .11 RMSEA = .08 CFI = .20
Wong's Emotional Intelligence test (WEIS)	3.47%	Chi-square = 9.14**/df = 2 SRMR = .04 RMSEA = .11 CFI = .31

Notes: $N = 299$; *** $p \leq .001$; ** $p \leq .01$; * $p \leq .05$

The Harman's one-factor test for the Assessing Emotions Scale (AES) showed that the single factor accounted for only 8.59% of the covariance between the scale variables. In terms of fit indices, the CFA results show that a single factor did not fit the model well at chi-square/df ratio = 2.44; $p \leq .001$; RMSEA = .07; SRMR = .06; CFI = .78. The CFI, which was below .90, did not support the model fit.

For the job performance scale the one-factor CFA fit indices did not show model fit because the CFI of .86 was below the .90 threshold (chi-square/df ratio = 2.28; $p \leq .001$; RMSEA = .07; SRMR = .06; CFI = .86. The Harman's one-factor solution for the job performance scale explained 5.53% of the covariance.

In terms of the MBTI, the CFA one-factor solution did not show model fit because the CFI of .20 was way below the .90 threshold, and the SRMR of .11 was above the .10 threshold (chi-square/df = 2.28; $p \leq .001$; RMSEA = .08; SRMR = .11; CFI = .20). The MBTI's Harman's one-factor solution accounted for 9.16% of the covariance.

The CFA one-factor solution for the Wong's Emotional Intelligence Scale (WEIS) indicated that the single factor accounted for 3.47% of the covariance between the scale variables. The fit indices indicated lack of model fit, emanating from a RMSEA of .11, which was above the .10 threshold (chi-square/df = 4.57; $p \leq .001$; RMSEA = .11; SRMR = .04; CFI = .95).

The tests for the common method variance provided evidence that common method variance was not a serious threat to the interpretation of the findings.

7.1.2 Validity of the measurement model

The next step involved testing the measurement model validity for the GAMA, WEIS, AES, and the Job Performance Scale. The CFA was not performed for the MBTI because it has dichotomous subscales. For the relevant scales, the CFA was run using SAS version 9.4 (SAS, 2013). The CALIS procedure (in the SAS version 9.4) with maximum likelihood using the Levenberg-Marquardt optimisation method was used to optimise the model fit. Table 7.2 shows the original and optimised models for the measurement scales.

Table 7.2

Confirmatory Factor Analysis: Measurement Model Construct Validity

Measurement instrument	Confirmatory Factor Analysis (CFA) (Original model)	Confirmatory Factor Analysis (CFA) (Optimised model)
Assessing Emotions Scale (AES)	Chi-square = 1043.37***/df = 428	Chi-square = 362.46***/df = 178
Construct factors:	SRMR = .06	SRMR = .05
Perception of emotion	RMSEA = .07	RMSEA = .06
Managing own emotions	CFI = .78	CFI = .91
Managing others' emotions		
Utilisation of emotions		
Job Performance Scale (JPS)	Chi-square = 424.36***/df = 186	Chi-square = 206.03***/df = 111
Construct factors:	SRMR = .06	SRMR = .05
Task Performance (TP)	RMSEA = .07	RMSEA = .05
OCBI	CFI = .86	CFI = .93
OCBO		
Wong's Emotional Intelligence test (WEIS)	Chi-square = 9.14**/df = 2	Chi-square = .59*/df = 1
Construct factors:	SRMR = .04	SRMR = .01
Self-emotional appraisal	RMSEA = .11	RMSEA = .00
Other's emotional appraisal	CFI = .95	CFI = 1.00
Regulation of emotion		
Use of emotion		
General Ability Measure for Adults (GAMA)	Chi-square = .94 /df = 2	Chi-square = .94 /df = 2
	SRMR = .01	SRMR = .01
	RMSEA = .00	RMSEA = .00
	CFI = 1.00	CFI = 1.00

Notes: $N = 299$; *** $p \leq .001$; ** $p \leq .01$; * $p < .05$

The following are the fit statistics for the scales:

- AES: Chi-square/df = 2.04; $p \leq .001$; RMSEA = .06; SRMR = .05; CFI = .90.
- Job Performance Scale: Chi-square/df = 1.85 $p \leq .001$; RMSEA = .05; SRMR = .05; CFI = .93.
- WEIS: Chi-square/df = .30 $p \leq .05$; RMSEA = .00; SRMR = .01; CFI = 1.00.
- GAMA: Chi-square/df = .47 $p < .62$; RMSEA = .00; SRMR = .01; CFI = 1.00

The MBTI was not included in the CFA because of the dichotomous nature of the scale.

In summary, the CFA fit indices for all the scales showed good model fit, indicating that lack of model fit was not a threat to the interpretation of the results. Having tested the construct validity of the measurement scales, the next step was to determine scale reliability.

7.1.3 Assessing scale reliability

The Cronbach' alpha and composite reliabilities (Internal consistency) were used to determine the scale reliabilities. Table 7.3 shows the reliability analysis for the measurement scales.

Table 7.3

Reliability of the Measurement Model for Each Scale

Scales and dimensions	Cronbach's alpha (α)	Composite reliability (CR)
Assessing Emotions Scale (AES)	.90	.90
Perception of emotion (PE)	.80	.80
Managing own emotions (MOWNE)	.78	.78
Managing others' emotions (MOE)	.66	.66
Utilisation of emotion (UE)	.72	.70
Job Performance Scale	.84	.84
Task Performance (TP)	.83	.76
OCBI	.78	.69
OCBO	.68	.60
Wong's Emotional Intelligence test (WEIS)	.55	
Self-emotional appraisal (SEA)	.16	
Other's emotional appraisal (OEA)	.19	N/A
Regulation of emotion (REO)	.16	
Use of emotion (UOE)	.17	
Myers-Brigs Type Indicator (MBTI)	.87	
Extraversion-Introversion (E/I)	.78	
Sensing-Intuition (S/N)	.81	N/A
Thinking-Feeling (T/F)	.84	
Judging-Perceiving (J/P)	.84	
General Ability Measure for Adults (GAMA)	.76	
Matching	.33	
Analogies	.56	N/A
Sequences	.61	
Construction	.40	

For the AES and its subscales, the Cronbach's alpha ranged from .66 to .90 and composite reliability ranged from .66 to .90. In terms of the job performance scale, the Cronbach's alpha and composite reliabilities ranged from .68 to .84 and .60 to .84, respectively.

Responses to the WEIS, MBTI and GAMA were recorded on a binary scale and only Cronbach's alphas were computed. The MBTI showed good internal consistency because the reliability coefficients ranged from .78 to .87.

The Cronbach's alpha for the overall GAMA scale was .76. The alphas for the GAMA subscales were, however, low and ranged from .33 to .61. For the GAMA, the overall scale was more important and therefore reliability was not a threat to the interpretation of the results.

For the WEIS and its subscales, the Cronbach's alphas were low, ranging from .16 to .55. The low reliability coefficients can be attributed to the fact that the responses from the WEIS were recorded on a binary scale. However, and as already mentioned in Chapter 7, the overall scale reliability of .55 is acceptable for research purposes (Taber, 2018). Nevertheless, the low reliability coefficients were considered during the interpretation of results.

In terms of SEM, only the overall scales were important and thus, only the WEIS had a Cronbach's alpha of below .70. As stated in Chapter 6, since internal consistency reliability coefficients of .55 are acceptable for research purposes (Sikolia et al., 2016), the low alpha for the WEIS did not pose a serious threat to the interpretation of the results.

7.1.4 Testing the construct validity of the overall measurement model

SAS version 9.4 (2013) was used to test the construct validity of the measurement model. The one-factor solution confirmatory factor analysis (CFA) was used to test the initial model, which is shown in Table 7.4 (Model 1).

Model 1

The initial model (Model 1) was a one-factor solution with all subscales of the predictor and criterion variables loading onto the overall factor. These included matching, analogies, sequence, and construction (for GAMA: cognitive intelligence), self-emotional appraisal, other's emotional appraisal, use of emotion, and regulation of emotion (for WEIS: ability emotional intelligence), perception of emotion, managing own emotions, managing others' emotions, and utilisation of emotion (for AES: trait emotional intelligence); extraversion-

introversion, thinking-feeling, sensing-intuition, judging-perceiving, intuition-thinking, intuition-feeling, sensing-thinking, and sensing-feeling (for MBTI: personality); and task performance, OCBI, and OCBO (for job performance). Model 1 did not provide satisfactory fit because the CFI of .27 was below .90 and RMSEA of .16 and SRMR of .16 were above .10. Thus, a multifactor CFA model was necessary for ensuring model fit.

Model 2

Model 2 entailed running a multifactor CFA, with all subscales of the variables of GAMA, WEIS, AES, MBTI, and job performance loading onto their respective latent variables. As shown in Table 7.4, Model 2 did not provide satisfactory fit because the CFI of .70 was below .90 and the RMSEA of .11 was above .10.

Model 3

The final optimised multifactor CFA model (Model 3) showed model fit (chi-square = 318.99 (df 213), $p \leq .001$; RMSEA = .05; SRMR = .07; CFI = .90.

Table 7.4

Construct Validity of Overall Measurement Model

Model	Chi-square	CFA Type	df	<i>p</i>	RMSEA	SRMR	CFI
1	1237.84	One factor CFA	230	.0001	.16	.16	.27
2	634.70	Multifactor CFA	220	.0001	.11	.09	.70
3	318.99	Optimised multifactor CFA	213	.0001	.05	.07	.90

In summary, the results showed that the overall measurement model (model 3) had acceptable model fit (construct validity) for further statistical analysis and that multicollinearity did not pose a serious threat to the findings.

7.2 DESCRIPTIVE STATISTICS

This section provides descriptive statistics (mean, standard deviation, minimum values, maximum values, skewness, frequency distributions, and kurtosis). Frequency distributions of sociodemographic variables (age, gender, job tenure, and job type) have already been

provided in section 6.2 (Chapter 6) and thus will not be discussed here. Only MBTI types and subscale frequency distributions will be reported on in this section.

7.2.1 Descriptive statistics and frequencies

This section reports the overall sample descriptive statistics, that is, means, standard deviations, skewness, and kurtosis for the overall and subscale scores of the AES, WEIS, and the job performance scale. The same descriptive statistics stratified by the sociodemographic variables (age, gender, job tenure, and job type) will also be reported on. In terms of the MBTI, only frequencies will be reported on since the data for the MBTI subscales were dichotomous.

7.2.1.1 Descriptive statistics: scales

This section reports the overall sample's mean scores, standard deviations, skewness, and kurtosis for the overall sample and the subscales of the AES, WEIS, and the job performance scale. Table 7.5 shows the sample characteristics in terms of the aforementioned descriptive statistics. The normality of data will be interpreted in terms of skewness and kurtosis guidelines, which were discussed in Chapter 6. According to Pallant (2013), skewness values of not more than 1.00 but not less than -1.00 and kurtosis values of not more than 3.00 but not less than -300 indicate that the data are normally distributed around the mean.

Table 7.5

Descriptive Statistics: Mean Scores, Standard Deviations, Skewness and Kurtosis for the AES, WEIS, and the Job Performance Scale

Variable	Highest Possible Score	Mean	SD	Skewness	Kurtosis	Minimum	Maximum
GAMA (Cognitive Intelligence)	66.00	32.27	6.10	.12	.03	16.00	49.00
Matching	11.00	8.67	1.37	-.20	-.32	5.00	11.00
Analogies	17.00	10.02	2.46	-.44	-.02	1.00	15.00
Sequence	20.00	7.33	2.39	-.11	.61	1.00	15.00
Construction	18.00	6.25	1.71	1.06	1.70	3.00	14.00
Wong's Emotion Intelligence Test (WEIS)	40.00	28.33	3.83	-.48	.15	15.00	37.00
Self Emotional Appraisal	10.00	7.51	1.36	-.26	.27	2.00	10.00
Other's emotional appraisal	10.00	6.89	1.44	-.27	-.57	3.00	10.00
Use of emotion	10.00	6.62	1.39	-.18	-.24	3.00	10.00
Regulation of emotion	10.00	7.3	1.41	-.40	-.06	3.00	10.00
Assessing Emotions scale (AES)	5.00	4.05	.46	-.85	2.96	1.57	5.00
Perception of emotion	5.00	3.89	.55	-.38	.58	2.00	5.00
Managing own emotions	5.00	4.13	.54	-.98	2.24	1.50	5.00
Managing others' emotions	5.00	4.13	.53	-.77	2.21	1.25	5.00
Utilisation of emotion	5.00	4.15	.56	-.78	1.92	1.25	5.00
Job Performance Scale	5.00	4.14	.36	-.60	0.39	2.82	4.82
Task Performance	5.00	4.23	.42	-.33	0.99	2.57	5.00
OCBI	5.00	3.98	.52	-.74	1.04	1.67	5.00
OCBO	5.00	4.21	.49	-.56	0.91	2.00	5.00

The results are described per each scale:

GAMA

The overall GAMA scale had a possible highest score of 66. The results show that the highest and lowest scores for the sample were 49 and 16. The mean score was 32.27 (SD = 6.10), indicating that the sample had generally low scores on the GAMA. The standard deviation of 6.10 shows that the scores were dispersed from the mean. In terms of the GAMA and its subscales, the matching subscale had the highest mean of 8.67 (SD = 1.37) and the

construction subscale had the lowest mean of 6.25 (SD = 1.71). The skewness and kurtosis values for the GAMA were .12 and .03, respectively, indicating that the scores were normally distributed around the mean. However, the scores for the construction subscale of the GAMA were non-normal and positively skewed and therefore not normally distributed around the mean, emanating from the skewness value of 1.06.

WEIS

The highest possible score for the WEIS was 40. The highest score for the sample was 37 and the lowest score was 15. The mean score was 28.33 (SD = 3.83), indicating that the scores were high. The standard deviation indicates that the scores were normally spread around the mean. The self emotional appraisal subscale had the highest mean (M = 7.52, SD = 1.36) and the use of emotions subscale had the lowest mean, that is, 6.62 (SD = 1.39). The means and standard deviations indicate that the score were spread around the mean as expected. The skewness and kurtosis values indicate that the data were normally distributed around the mean.

AES

The AES (trait emotional intelligence) had responses recorded on a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The utilisation and emotions subscales had the highest mean (M = 4.15; SD = .56) and the perception of emotions subscale had the lowest mean (M = 3.89; SD = .55). The mean for the overall AES was 4.05 (SD = .46), with a highest and lowest scores of 5.00 and 1.57, respectively. The results show that the scores for the AES were generally high and that the data were spread close to the mean. The skewness and kurtosis values indicate that the data were normally distributed around the mean.

Job performance scale

Scores for the job performance scale were recorded on a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Task performance had the highest mean score (M = 4.23; SD = .42), while OCBI had the lowest mean score (M = 3.98; SD = .52). The mean for the overall job performance scales was 4.14 (SD = .36), which indicates that the score was generally high. Both skewness and kurtosis values indicate that the scores were normally distributed around the mean.

7.2.1.2 Descriptive statistics: sociodemographic variables

Further descriptive statistics on predictor and criterion variables were computed for each of the sociodemographic variables of age, gender, job tenure, and job type. This section therefore reports the mean scores, standard deviations, skewness, and kurtosis of the sociodemographic groupings for the AES, the WEIS, and the job performance scale. For each of the sociodemographic variables, a table will be presented first before explanation of the statistics in the table.

Age

The results of the mean scores, standard deviations, skewness, and kurtosis by age are reported in Table 7.6.

Table 7.6

Overall and Subscale Means, Standard Deviations, Skewness, Kurtosis, Minimum, and Maximum by Age

Age	Variable	Highest Possible Score	Mean	Standard Deviation (SD)	Skewness	Kurtosis	Minimum	Maximum
22 - 36 N=181	GAMA (Cognitive Intelligence)	66.00	33.39	6.27	.09	.09	18.00	49.00
	Matching	11.00	8.84	1.35	-.23	-.29	5.00	11.00
	Analogies	17.00	10.35	2.45	-.66	.52	1.00	15.00
	Sequence	20.00	7.73	2.39	-.05	1.01	1.00	15.00
	Construction	18.00	6.46	1.88	1.05	1.24	3.00	14.00
	Wong's emotion Intelligence Test (WEIS)	40.00	28.12	3.60	-.25	-.03	17.00	37.00
	Self Emotional Appraisal	10.00	7.56	1.32	-.35	.95	2.00	10.00
	Other's emotional appraisal (OEA)	10.00	6.74	1.43	-.30	-.55	3.00	9.00
	Use of emotion (UOE)	10.00	6.49	1.39	-.19	-.27	3.00	10.00
	Regulation of emotion (REO)	10.00	7.33	1.27	-.27	.08	4.00	10.00
	Assessing Emotions scale (AES)	5.00	4.05	.46	-1.29	4.84	1.57	5.00
	Perception of emotion (PE)	5.00	3.87	.58	-.44	.67	2.00	5.00
	Managing own emotions (MOWNE)	5.00	4.15	.53	-1.38	3.92	1.50	5.00
	Managing others' emotions (MOE)	5.00	4.14	.52	-1.10	4.46	1.25	5.00
	Utilisation of emotion (UE)	5.00	4.14	.56	-.96	3.03	1.25	5.00
	Job Performance	5.00	4.18	.36	-.62	.06	3.12	4.82
	Task Performance	5.00	4.29	.40	.11	-.56	3.14	5.00
	OCBI	5.00	4.02	.53	-.75	.39	2.50	5.00
	OCBO	5.00	4.23	.52	-.76	1.27	2.00	5.00
> 36 N=118	GAMA (Cognitive Intelligence)	66.00	30.57	5.43	-.09	-.49	16.00	44.00
	Matching	11.00	8.41	1.36	-.17	-.33	5.00	11.00
	Analogies	17.00	9.51	2.39	-.17	-.43	4.00	14.00
	Sequence	20.00	6.72	2.26	-.32	-.20	1.00	12.00
	Construction	18.00	5.93	1.36	.48	.35	3.00	10.00
	Wong's emotion Intelligence Test (WEIS)	40.00	28.64	4.15	-.76	.42	15.00	36.00
	Self Emotional Appraisal	10.00	7.44	1.43	-.14	-.47	4.00	10.00
	Other's emotional appraisal (OEA)	10.00	7.13	1.44	-.24	-.67	4.00	10.00
	Use of emotion (UOE)	10.00	6.82	1.37	-.14	-.20	4.00	10.00
	Regulation of emotion (REO)	10.00	7.25	1.61	-.46	-.40	3.00	10.00
	Assessing Emotions scale (AES)	5.00	4.05	.45	-.16	.08	2.81	5.00
	Perception of emotion (PE)	5.00	3.92	.51	-.20	.18	2.57	5.00
	Managing own emotions (MOWNE)	5.00	4.10	.56	-.45	.42	2.33	5.00
	Managing others' emotions (MOE)	5.00	4.12	.55	-.35	-.45	3.00	5.00
	Utilisation of emotion (UE)	5.00	4.15	.55	-.48	.19	2.25	5.00
	Job Performance	5.00	4.07	.34	-.70	1.16	2.82	4.76
	Task Performance	5.00	4.14	.42	-.87	2.28	2.57	5.00
	OCBI	5.00	3.92	.50	-.81	2.58	1.67	5.00
	OCBO	5.00	4.17	.45	-.19	.15	3.00	5.00

The results for the descriptive statistics for the age groups are reported per each scale:

GAMA

In terms of the subscales, the matching subscale had the highest mean for both the 22 to 36 years age group ($M = 8.84$; $SD = 1.35$) and the 37 to 61 years age group ($M = 8.41$, $SD = 1.36$). The construction subscale for the 22 to 36 years age group had the lowest mean ($M = 6.46$; $SD = 1.88$). The pattern was the same for the 37 to 61 years age group where the mean was 5.93 ($SD = 1.36$). In terms of the overall GAMA scores, the 22 to 36 years age group had a mean of 33.39 ($SD = 6.27$), and thus performance was just average. The overall GAMA scores for the 37 to 61 years age group were generally low, with a mean of 30.57 ($SD = 5.43$). The standard deviations for the overall GAMA scale for both age groups indicate that the scores were generally dispersed far from the mean. In terms of the skewness and kurtosis values, the data were normally distributed except for the construction subscale of the 22 to 36 years age group, which had a skewness value of 1.05. Generally, the 22 to 36 years age group had higher cognitive intelligence scores than the 37 to 61 years age group.

WEIS

For the WEIS, the self emotional appraisal subscale had the highest mean for both age groups. Thus, the 22 to 36 years age group had a mean of 7.56 ($SD = 1.32$), while the mean for the 37 to 61 years age group was 7.44 (1.43). In terms of the overall WEIS, the 37 to 61 years age group had a mean of 28.64 ($SD = 4.15$) and performed better than the 22 to 36 years age group ($M = 28.12$; $SD = 3.60$). For both age groups, the WEIS scores were generally high. The skewness and kurtosis statistics indicate that the data were normally distributed from the mean for both age groups. The standard deviation shows that the data were also normally dispersed from the mean.

AES

The managing own emotions subscale for the 22 to 36 years age group had the highest mean ($M = 4.15$; $SD = .53$). In terms of the 37 to 61 years age group, the utilisation of emotion subscale had the highest mean ($M = 4.15$; $SD = .55$). The 22 to 36 years age group had an overall AES mean of 4.05 ($SD = .46$), which was the same mean score when compared with the 37 to 61 years age group ($M = 4.05$; $SD = .45$). For both age groups, the scores were generally high. The scores for the 37 to 61 years were normally distributed around the mean. However, the skewness values for the overall AES, managing own emotions, and managing others' emotions scales for the 22 to 36 years age group were below -1.00. For the same age group, the kurtosis values for the overall AES, managing own emotions, managing others'

emotions, and utilisation of emotion scales were above 3.00 indicating that the data were not normally distributed.

Job Performance Scale

For the 22 to 36 years age group, task performance had the highest mean ($M = 4.29$; $SD = .40$), while for the 37 to 61 years age group, OCBO had the highest mean ($M = 4.17$; $SD = .45$). The OCBI subscale had the lowest score for both the 22 to 36 years age group ($M = 4.02$; $SD = .53$) and the 37 to 61 years age group ($M = 3.92$; $SD = .50$). In terms of the overall job performance scale, respondents from the 22 to 36 years age group scored higher with a mean of 4.18 ($SD = .36$), while the 37 to 61 years age had a mean of 4.07 ($SD = .34$). The mean scores indicate that the scores from the job performance scale were generally high, with the 22 to 36 years scoring higher than the 37 to 61 years age group. The standard deviation scores for both group indicate that the scores were distributed close to the mean. The skewness and kurtosis statistics for both age groups show that the data were normally distributed around the mean.

The next section reports the descriptive statistics for gender.

Gender

The results of the mean scores, standard deviations, skewness, and kurtosis by gender are reported on in Table 7.7.

Table 7.7

Overall and Subscale Means, Standard Deviations, Skewness, Kurtosis, Minimum, and Maximum by Gender

Gender	Variable	Highest Possible Score	Mean	Standard Deviation (SD)	Skewness	Kurtosis	Minimum	Maximum
Male (N = 183)	GAMA (Cognitive Intelligence)	66.00	32.32	6.29	.25	.06	16.00	49.00
	Matching	11.00	8.64	1.36	-.03	-.36	5.00	11.00
	Analogies	17.00	9.98	2.51	-.48	.24	1.00	15.00
	Sequence	20.00	7.42	2.40	.11	.89	1.00	15.00
	Construction	18.00	6.28	1.81	1.13	1.78	3.00	14.00
	Wong's emotion Intelligence Test (WEIS)	40.00	28.4	4.04	-.51	.09	15.00	37.00
	Self Emotional Appraisal	10.00	7.52	1.45	-.33	.27	2.00	10.00
	Other's emotional appraisal (OEA)	10.00	6.98	1.51	-.27	-.68	3.00	10.00
	Use of emotion (UOE)	10.00	6.64	1.40	-.31	-.31	3.00	10.00
	Regulation of emotion (REO)	10.00	7.26	1.48	-.46	.06	3.00	10.00
	Assessing Emotions scale (AES)	5.00	4.04	.48	1.13	3.72	1.57	4.86
	Perception of emotion (PE)	5.00	3.86	.57	-.48	.56	2.00	5.00
	Managing own emotions (MOWNE)	5.00	4.12	.56	1.20	2.95	1.50	5.00
	Managing others' emotions (MOE)	5.00	4.10	.56	-.90	2.69	1.25	5.00
	Utilisation of emotion (UE)	5.00	4.17	.55	1.14	3.95	1.25	5.00
	Job Performance	5.00	4.14	.36	-.77	.77	2.82	4.82
	Task Performance	5.00	4.23	.43	-.42	1.65	2.57	5.00
	OCBI	5.00	3.99	.50	1.04	2.04	1.67	4.83
	OCBO	5.00	4.21	.49	-.31	-.16	2.75	5.00
Female (N = 116)	GAMA (Cognitive Intelligence)	66.00	32.21	5.83	-.16	-.04	18.00	47.00
	Matching	11.00	8.72	1.40	-.46	-.17	5.00	11.00
	Analogies	17.00	10.07	2.37	-.37	-.55	4.00	14.00
	Sequence	20.00	7.21	2.39	-.46	.12	1.00	12.00
	Construction	18.00	6.22	1.56	.87	1.17	3.00	11.00
	Wong's emotion Intelligence Test (WEIS)	40.00	28.21	3.48	-.43	.20	18.00	35.00
	Self Emotional Appraisal	10.00	7.50	1.22	-.10	.01	4.00	10.00
	Other's emotional appraisal (OEA)	10.00	6.75	1.32	-.37	-.37	3.00	9.00
	Use of emotion (UOE)	10.00	6.59	1.38	.04	-.04	4.00	10.00
	Regulation of emotion (REO)	10.00	7.36	1.30	-.22	-.58	5.00	10.00
	Assessing Emotions scale (AES)	5.00	4.07	.42	-.18	.72	2.81	5.00
	Perception of emotion (PE)	5.00	3.93	.52	-.14	.49	2.43	5.00
	Managing own emotions (MOWNE)	5.00	4.15	.52	-.52	.51	2.33	5.00
	Managing others' emotions (MOE)	5.00	4.18	.48	-.35	.21	2.75	5.00
	Utilisation of emotion (UE)	5.00	4.11	.57	-.24	-.71	2.75	5.00
	Job Performance	5.00	4.13	.34	-.3	-.27	3.29	4.76
	Task Performance	5.00	4.23	.40	-.14	-.4	3.14	5.00
	OCBI	5.00	3.96	.55	-.37	.03	2.50	5.00
	OCBO	5.00	4.21	.49	-.98	2.7	2.00	5.00

GAMA

The matching subscale had the highest mean for both males and females, with males having a mean of 8.64 (SD = 1.36) while females having a mean of 8.72 (SD = 1.40). The construction subscale had the lowest mean for both groups with means of 6.28 (SD = 1.81) for males and 6.22 (SD = 1.56) for females. For the overall GAMA scale, males had a slightly higher mean (M = 32.30; SD = 6.29) than females (M = 32.20; SD = 5.83). The mean scores for the overall GAMA scales show that scores were generally low. The standard deviations show that the data for both males and females were generally dispersed from the mean. In terms of the skewness and kurtosis statistics and except for the construction subscale with a skewness value of 1.13 for males, the rest of the scores were normally distributed around the mean.

WEIS

For the WEIS, the self emotional appraisal subscale had the highest mean score for both males (M = 7.52; SD = 1.45) and females (M = 7.50; SD = 1.22). The use of emotion subscale had the lowest score for males and females, with mean scores of 6.64 (SD = 1.40) and 6.59 (SD = 1.38), respectively. For overall WEIS scale, males (M = 28.40; SD = 4.04) scored slightly higher than female respondents (M = 28.21; SD = 3.48). Generally, the WEIS score were high for both males and females. The standard deviations show that the scores were generally dispersed far from the mean. The skewness and kurtosis statistics for both males and females indicate that the data were normally distributed from the mean.

AES

The scales with the highest mean scores were the utilisation of emotion with a mean of 4.17 (SD = .55) for males and the managing others' emotions with a mean of 4.18 (SD = .48) for females. In terms of the overall AES, females scored slightly higher (M = 4.07; SD = .42) than males (M = 4.04; SD = .48). The lowest scores came from the perception of emotion subscale for both males (M = 3.86; SD = .57) and females (M = 3.93; SD = .52). However, scores from the AES were generally high for both males and females. The standard deviations show that the scores were normally dispersed around the mean. For males and for the overall AES scale, the managing own emotions and the utilisation of emotion subscale, either the skewness or the kurtosis statistics were above the cut-off values to assume normality of the distribution of

the data around the mean. However, for females, the skewness and kurtosis figures indicate that the data were normally distributed around the mean.

Job performance scale

The highest mean scores were from the subscale of task performance for both males ($M = 4.23$; $SD = .43$) and females ($M = 4.23$; $SD = .40$). Males had the lowest mean scores of 3.99 ($SD = .50$), coming from the OCBI subscale, while for females the OCBI had also the lowest mean score of 3.96 ($SD = .55$). Males scored slightly higher on the overall job performance scale with a mean of 4.14 ($SD = .36$) than females, who had a mean score of 4.13 ($SD = .34$).^b The scores from the job performance scale were generally high. The scores were also distributed close to the mean. The skewness and kurtosis statistics indicate that the data were normally distributed around the mean, save for the OCBI subscale for the male respondents, which had a skewness value of -1.04.

The next section reports the descriptive statistics for job tenure.

Job tenure

The results of the mean scores, standard deviations, skewness, and kurtosis by job tenure are reported on in Table 7.8.

Table 7.8

Overall and Subscale Means, Standard Deviations, Skewness, Kurtosis, Minimum, and Maximum by Job Tenure

Job Tenure	Variable	Highest Possible Score	Mean	Standard Deviation (SD)	Skewness	Kurtosis	Minimum	Maximum
≤10 N = 148	GAMA (Cognitive Intelligence)	66.00	33.14	6.34	-.07	.26	16.00	48.00
	Matching	11.00	8.84	1.39	-.18	-.56	5.00	11.00
	Analogies	17.00	10.42	2.41	-.65	.00	4.00	14.00
	Sequence	20.00	7.61	2.38	-.14	1.52	1.00	15.00
	Construction	18.00	6.26	1.85	1.17	2.02	3.00	14.00
	Wong's emotion Intelligence Test (WEIS)	40.00	28.37	3.45	-.14	-.17	19.00	37.00
	Self Emotional Appraisal	10.00	7.62	1.26	.06	-.50	4.00	10.00
	Other's emotional appraisal (OEA)	10.00	6.89	1.40	-.33	-.31	3.00	10.00
	Use of emotion (UOE)	10.00	6.53	1.37	-.22	-.06	3.00	10.00
	Regulation of emotion (REO)	10.00	7.34	1.28	-.20	-.13	4.00	10.00
	Assessing Emotions scale (AES)	5.00	4.06	.46	-1.44	6.05	1.57	4.95
	Perception of emotion (PE)	5.00	3.87	.55	-.39	1.03	2.00	5.00
	Managing own emotions (MOWNE)	5.00	4.16	.55	-1.44	4.21	1.50	5.00
	Managing others' emotions (MOE)	5.00	4.16	.53	-1.20	5.10	1.25	5.00
	Utilisation of emotion (UE)	5.00	4.14	.56	-1.10	3.95	1.25	5.00
	Job Performance	5.00	4.20	.37	-.72	.02	3.12	4.82
	Task Performance	5.00	4.30	.41	.01	-.57	3.14	5.00
	OCBI	5.00	4.05	.57	-.83	.32	2.50	5.00
	OCBO	5.00	4.24	.51	-.80	1.58	2.00	5.00
>10 N = 151	GAMA (Cognitive Intelligence)	66.00	31.43	5.75	.27	-.11	18.00	49.00
	Matching	11.00	8.50	1.33	-.29	-.09	5.00	11.00
	Analogies	17.00	9.62	2.44	-.28	.22	1.00	15.00
	Sequence	20.00	7.07	2.38	-.09	-.17	2.00	14.00
	Construction	18.00	6.25	1.58	.88	.90	3.00	12.00
	Wong's emotion Intelligence Test (WEIS)	40.00	28.28	4.18	-.65	.14	15.00	36.00
	Self Emotional Appraisal	10.00	7.40	1.46	-.42	.49	2.00	10.00
	Other's emotional appraisal (OEA)	10.00	6.90	1.49	-.22	-.77	3.00	10.00
	Use of emotion (UOE)	10.00	6.72	1.41	-.15	-.39	4.00	10.00
	Regulation of emotion (REO)	10.00	7.26	1.54	-.49	-.18	3.00	10.00
	Assessing Emotions scale (AES)	5.00	4.05	.46	-.29	.23	2.81	5.00
	Perception of emotion (PE)	5.00	3.91	.55	-.38	.21	2.43	5.00
	Managing own emotions (MOWNE)	5.00	4.10	.54	-.54	.62	2.33	5.00
	Managing others' emotions (MOE)	5.00	4.10	.53	-.36	-.34	3.00	5.00
	Utilisation of emotion (UE)	5.00	4.15	.56	-.47	.05	2.25	5.00
	Job Performance	5.00	4.07	.34	-.63	1.21	2.82	4.76
	Task Performance	5.00	4.16	.41	-.73	2.29	2.57	5.00
	OCBI	5.00	3.91	.46	-.87	2.81	1.67	5.00
	OCBO	5.00	4.18	.47	-.31	.17	2.75	5.00

GAMA

The matching subscale recorded the highest mean for both the 1 to 10 years job tenure group ($M = 8.84$; $SD = 1.39$) and for the 11 to 39 years job tenure group ($M = 8.50$; $SD = 1.33$). The lowest scores were recorded on the construction subscales for both groups, where the 1 to 10 years job tenure group had a mean of 6.26 ($SD = 1.85$), while the 11 to 39 years job tenure group having a mean of 6.25 ($SD = 1.58$). The overall GAMA scores for both the job tenure groups were generally low. The 1 to 10 years job tenure group had a mean of 33.14 ($SD = 6.34$) and scored higher than the 11 to 39 years job tenure group which had a mean of 31.43 ($SD = 5.75$). The standard deviations for the overall GAMA show that the data were spread far from the mean. The scores construction subscale for the 1 to 10 years job tenure group were not normally distributed around the mean owing to the skewness value of 1.17. For the rest of the scales, the data were normally distributed around the mean.

WEIS

The self emotional appraisal subscales had the highest mean for both job tenure groups; the 1 to 10 years and the 11 to 39 years age groups had means of 7.62 ($SD = 1.26$) and 7.40 ($SD = 1.46$), respectively. The utilisation of emotion subscale had the lowest mean score for both the 1 to 10 years job tenure group ($M = 6.53$; $SD = 1.37$) and the 11 to 39 years job tenure group ($M = 6.72$; $SD = 1.41$). However, the scores from the WEIS were generally high. The standard deviations show that the data were normally dispersed from mean. The skewness and kurtosis statistics indicate that the data were normally distributed from the mean.

AES

In terms of the AES, and for the 1 to 10 years job tenure group, the managing own emotions ($M = 4.16$; $SD = .55$) and the managing others' emotions ($M = 4.16$; $SD = .53$) had the highest scores. For the 11 to 39 years job tenure group, the utilisation of emotion had the highest scores, with a mean of 4.15 ($SD = .56$). The lowest scores for both job tenure groups were recorded on the perception of emotion subscale with the 1 to 10 years and the 11 to 39 years job tenure group having means of 3.87 ($SD = .55$) and 3.91 ($SD = .55$), respectively. The scores from the AES were generally high. The standard deviations show that the data were distributed close to the mean. The skewness and kurtosis statistics for the 11 to 39 years job tenure group shows that the data were normally distributed around the mean. However, for the 1 to 10 years, the skewness and kurtosis values for the overall AES and the subscales of

managing own emotions, managing others emotions and utilisation of emotions indicate that the data were not normally distributed around the mean.

Job performance scale

For the 1 to 10 years job tenure group, the task performance subscale had the highest score, with a mean of 4.30 (SD = .41). For the 11 to 39 years job tenure group, the highest score was recorded on the OCBO subscale, with a mean of 4.18 (SD = .47). The OCBI subscale had the lowest score for both the 1 to 10 years job tenure group (M = 4.05; SD = .57) and the 11 to 39 years job tenure group (M = 3.91; SD = .46). The scores for the job performance scale were high, with the 1 to 10 years job tenure group (4.20; SD = .37) recording a higher mean score than the 11 to 39 years job tenure group, which had a mean of 4.07 (SD = .34). The standard deviations show that the data were close to the mean. The skewness and kurtosis statistics indicate that the data were normally distributed around the mean.

The next section reports the descriptive statistics for job type.

Job type

The results of the mean scores, standard deviations, skewness, and kurtosis by job type are reported on in Table 7.9

Table 7.9

Overall and Subscale Means, Standard Deviations, Skewness, Kurtosis, Minimum, and Maximum by Job Type

Job Type	Variable	Highest Possible Score	Mean	Standard Deviation	Skewness	Kurtosis	Minimum	Maximum
High emotional Labour N = 173	GAMA (Cognitive Intelligence)	66.00	32.09	5.92	.01	.21	16.00	47.00
	Matching	11.00	8.65	1.36	-.20	-.18	5.00	11.00
	Analogies	17.00	9.91	2.51	-.55	.15	1.00	14.00
	Sequence	20.00	7.28	2.35	-.30	.59	1.00	15.00
	Construction	18.00	6.25	1.61	1.32	3.45	3.00	14.00
	Wong's emotion Intelligence Test (WEIS)	40.00	28.75	3.54	-.64	.90	15.00	35.00
	Self Emotional Appraisal	10.00	7.61	1.34	-.11	-.47	4.00	10.00
	Other's emotional appraisal (OEA)	10.00	7.04	1.38	-.25	-.50	3.00	10.00
	Use of emotion (UOE)	10.00	6.69	1.37	-.24	.29	3.00	10.00
	Regulation of emotion (REO)	10.00	7.40	1.43	-.62	.34	3.00	10.00
	Assessing Emotions scale (AES)	5.00	4.07	.38	-.12	.25	3.00	5.00
	Perception of emotions (PE)	5.00	3.90	.49	.03	.03	2.86	5.00
	Managing own emotions (MOWNE)	5.00	4.14	.48	-.40	.47	2.33	5.00
	Managing others' emotions (MOE)	5.00	4.21	.42	-.22	.37	3.00	5.00
	Utilisation of emotions (UE)	5.00	4.12	.52	-.34	.24	2.25	5.00
	Job Performance	5.00	4.15	.35	-.75	1.03	2.82	4.76
	Task Performance	5.00	4.24	.42	-.69	2.14	2.57	5.00
	OCBI	5.00	4.00	.53	-.81	1.81	1.67	5.00
	OCBO	5.00	4.23	.49	-.87	2.02	2.00	5.00
Low emotional Labour N= 126	GAMA (Cognitive Intelligence)	66.00	32.53	6.36	.22	-.18	18.00	49.00
	Matching	11.00	8.70	1.39	-.22	-.46	5.00	11.00
	Analogies	17.00	10.17	2.39	-.26	-.38	4.00	15.00
	Sequence	20.00	7.40	2.46	.12	.64	1.00	15.00
	Construction	18.00	6.26	1.86	.82	.24	3.00	12.00
	Wong's emotion Intelligence Test (WEIS)	40.00	27.75	4.14	-.24	-.41	17.00	37.00
	Self Emotional Appraisal	10.00	7.37	1.38	-.46	1.10	2.00	10.00
	Other's emotional appraisal (OEA)	10.00	6.69	1.51	-.24	-.72	3.00	9.00
	Use of emotion (UOE)	10.00	6.53	1.42	-.08	-.82	4.00	9.00
	Regulation of emotion (REO)	10.00	7.16	1.38	-.10	-.41	4.00	10.00
	Assessing Emotions scale (AES)	5.00	4.03	.55	1.06	2.75	1.57	5.00
	Perception of emotions (PE)	5.00	3.87	.63	-.61	.52	2.00	5.00
	Managing own emotions (MOWNE)	5.00	4.12	.63	1.26	2.46	1.50	5.00
	Managing others' emotions (MOE)	5.00	4.03	.64	-.69	1.48	1.25	5.00
	Utilisation of emotions (UE)	5.00	4.19	.60	1.22	3.42	1.25	5.00
	Job Performance	5.00	4.12	.36	-.41	-.29	3.12	4.82
	Task Performance	5.00	4.22	.41	.19	-.50	3.14	5.00
	OCBI	5.00	3.96	.51	-.66	-.06	2.67	4.83
	OCBO	5.00	4.18	.49	-.15	-.43	2.75	5.00

GAMA

The matching subscale had the highest mean score for both the high emotional labour and the low emotional labour grouping with means of 8.65 (SD = 1.36) and 8.70 (SD = 1.39), respectively. The lowest scores were recorded on the construction subscales, where the high emotional labour group had a mean of 6.25 (SD = 1.61) and the low emotional labour group having a mean of 6.26 (SD = 1.86). The overall GAMA scores for both the job tenure groups were generally low. The high emotional labour group had a mean of 32.09 (SD = 5.92) and scored slightly lower than the low emotional labour group which had a mean of 32.53 (SD = 6.36). The standard deviations for the overall GAMA show that the data were generally dispersed from the mean. The scores for the construction subscale for the low emotional labour group were not normally distributed around the mean owing to the skewness and kurtosis statistics for the construction subscale which were above the cut-off of 1.00 and 3.00, respectively. For the rest of the scales, the data were normally distributed around the mean.

WEIS

The self emotional appraisal subscale for both sociodemographic groupings had the highest mean. Accordingly, the high emotional labour group had a mean of 7.61 (SD = 1.34) and the low emotional labour had a mean of 7.37 (SD = 1.38). The lowest scores were recorded in the use of emotion subscale for both the high emotional labour group (M = 6.69; SD = 1.37) and the low emotional labour group (M = 6.53; SD = 1.42). The high emotional labour group scored higher on the overall WEIS, with a mean of 28.75 (SD = 3.54) compared to the low emotional labour group which recorded a mean of 27.75 (SD = 4.14). The scores for the WEIS were high. The standard deviation show that the scores were normally dispersed around the mean. The skewness and kurtosis statistics indicate that the data were normally distributed around the mean for both groupings.

AES

For the high emotional labour group, the managing others' emotions had the highest mean score (M = 4.21; SD = .42), while the highest mean score for the low emotional labour group was 4.19 (SD = .60) and recorded on the utilisation of emotion subscale. The lowest scores were recorded on the perception of emotion subscale for both the high emotional labour group (M = 3.90; SD = .49) and the low emotional labour group (M = 3.87; SD = .63). The high emotional labour group had slightly higher scores (M = 4.07; SD = .38) than the low emotional labour group (M = 4.03; SD = .55). The scores from the AES were generally high. The standard

deviations show that the data were distributed close to the mean. For the high emotional labour category, the skewness and kurtosis statistics indicate that the data were normally distributed around the mean. However, for the low emotional labour category the data were not normally distributed around the mean because for the overall AES and the managing own emotions and utilisation of emotion subscales, either the skewness or the kurtosis statistics shows that the data was not normally distributed around the mean.

Job performance scale

The task performance subscale recorded the highest scores for both the high emotional labour group ($M = 4.24$; $SD = .42$) and the low emotional labour group ($M = 4.22$; $SD = .41$). The lowest scores were recorded on the OCBI subscales for both groupings, with the high emotional labour group recording a mean of 4.00 ($SD = .53$), while the low emotional labour group recorded a mean of 3.96 ($.51$). The high emotional labour group ($M = 4.15$; $SD = .35$) scored higher than the low emotional labour group ($M = 4.12$; $SD = .36$). Job performance score for both job types were generally high. The standard deviations for both groupings indicate that the data were distributed close to the mean. The skewness and kurtosis values show that the data were normally distributed around the mean.

7.2.1.3 Descriptive statistics: MBTI frequencies

The results of the MBTI frequencies are reported on in Table 7.10.

Table 7.10

MBTI Types Frequency Distribution

MBTI Poles	Frequency	Percent
Introversion	161	53.85
Extraversion	138	46.15
EI Missing	.00	
Intuition	130	47.97
Sensing	141	52.03
SN Missing	28	
Feeling	204	71.83
Thinking	80	28.17
TF Missing	15	
Perceiving	260	91.55
Judging	24	8.45
JP Missing	15	

In summary, the dominant frequencies appear to be I (introversion), S (sensing), F (feeling) and P (perceiving) as type preferences.

Table 7.11 contains the frequency distribution of the MBTI types. A discussion and definition of the 16 personality types in Table 7.11 was presented in Table 4.2 in Chapter 4.

Table 7.11

Frequency Distribution: MBTI Full Personality Types

Personality Type	Frequency	Percent
ENFJ	27	9.03
ENFP	7	2.34
ENTJ	49	16.39
ENTP	2	0.67
ESFJ	10	3.34
ESFP	1	0.33
ESTJ	39	13.04
ESTP	3	1.00
INFJ	22	7.36
INFP	5	1.67
INTJ	43	14.38
INTP	14	4.68
ISFJ	20	6.69
ISFP	1	0.33
ISTJ	52	17.39
ISTP	4	1.34
Total	299	100.00

Table 7.11 shows that the most prevalent personality types were ISTJ (17.39%), ENTJ (16.39%), INTJ (14.38%), and ESTJ (13.04%), and ENFJ (9.03%). The least prevalent personality types were ESFP (.33%), ENFJ (.33%), ENTP (.67%), ESTP (1.00%), and ISTP (1.34%).

The next section reports on the test for normality of data.

7.3 TEST FOR NORMALITY OF DATA

Table 7.12 shows the results of testing for normality using the Shapiro-Wilk and Kolmogorov-Smirnov statistics. Normality of data is assumed if the $p \leq .05$ (Ho & Yu, 2015). The results

show that the GAMA did not satisfy the assumptions for normality of the data, suggesting that correlational and inferential statistics should be computed using non-parametric tests.

Table 7.12

Normality Tests for GAMA, WEIS and Job Performance Scales

Scale	Shapiro-Wilk (W)	Shapiro-Wilk (p)	Kolmogorov-Smirnov (D)	Kolmogorov-Smirnov (p)
GAMA	.99	.0749	.06	.0100
Matching	.94	.0001	.15	.0101
Analogies	.97	.0001	.10	.0100
Sequence	.97	.0001	.12	.0100
Construction	.91	.0001	.22	.0100
WEIS	.98	.0000	.10	.0100
Self emotional appraisal	.94	.0001	.15	.0100
Other's motional appraisal	.94	.0001	.17	.0100
Use of emotion	.95	.0001	.18	.0100
Regulation of emotion	.95	.0001	.17	.0100
AES	.96	.0001	.08	.0100
Perception of emotion	.97	.0001	.12	.0100
Managing own emotions	.94	.0001	.13	.0100
Managing others' emotion	.94	.0001	.12	.0100
Utilisation of emotion	.94	.0001	.12	.0100
Job Performance	.97	.0001	.92	.0100
Task performance	.96	.0001	.1	.0100
OCBI	.96	.0001	.12	.0100
OCBO	.95	.0001	.13	.0100

7.4 CORRELATIONAL STATISTICS

This section provides bivariate correlations of the sociodemographic, independent (predictor), and dependent (criterion) variables, as well as bivariate correlations of the scales (GAMA, WEIS, AES, MBTI and job performance).

7.4.1 Bivariate correlations of the sociodemographic, independent (predictor), and dependent (criterion) variables

This section provides bivariate correlations of the sociodemographic, independent (predictor), and dependent (criterion) variables. The Spearman's correlation test was used to compute the bivariate correlations of the sociodemographic, independent and dependent variables.

Table 7.13 presents bivariate correlations of the sociodemographic variables (age, gender, job tenure, and job type), independent variables (cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality), and the dependent variable (job performance).

Table 7.13

Correlation between Predictor, Criterion and Sociodemographic Variables

Dependent Variable	Job Type	Gender	Age	Job Tenure
GAMA	-.02	.01	-.11	-.10
Matching	.06	.03	-.03	-.01
Analogies	.01	.03	-.16*	-.13
Sequence	-.03	.00	-.06	-.06
Construction	-.12	-.04	-.03	-.01
WEIS	-.18*	.06	.04	.01
Self emotional appraisal	-.11	.01	-.07	-.06
Other's motional appraisal	-.17*	.03	.04	.03
Use of emotion	-.11	-.02	.03	.03
Regulation of emotion	-.01	.06	-.02	-.08
AES	.06	.07	.00	-.01
Perception of emotion	.08	.13	.07	.04
Managing own emotions	.07	.07	-.06	-.06
Managing others' emotion	-.1	.06	-.05	-.08
Utilisation of emotion	.08	.02	.06	.08
Job Performance	-.05	-.12	-.11	-.14
Task Performance	-.07	-.09	-.05	-.08
OCBI	-.01	-.12	-.14	-.16*
OCBO	-.06	-.04	-.03	-.02
Extraversion–Introversion	.11	.08	-.10	-.08
Sensing–Intuition	-.02	-.04	-.02	-.07
Thinking–Feeling	-.11	.08	.00	.00
Judging–Perceiving	.02	-.08	-0.27***	-.30***
Intuition–Thinking	.07	-.1	.01	.08
Intuition–Feeling	-.08	-.01	.03	.07
Sensing–Thinking	.04	-.08	-.04	-.08
Sensing–Feeling	-.07	.07	-.11	-.08

Notes: $N = 299$; *** $p \leq .001$; ** $p \leq .01$; * $p \leq .05$

The results of the bivariate correlation of the predictor, criterion and moderator variables are explained in the following subsections.

7.4.1.1 Age

Negative correlations were found between the Analogies subscale (GAMA) and age ($r = -.16$; small practical effect; $p \leq .05$). The MBTI judging–perceiving dichotomy was negatively correlated with age at $r = -.27$; small practical effect; $p \leq .001$. No significant correlations were found between age and the rest of the variables.

7.4.1.2 Gender

The results show that there were no significant correlations between gender and the dependent and predictor variables.

7.4.1.3 Job Tenure

For job tenure, negative correlations were found between the MBTI judging–perceiving dichotomy and job tenure ($r = -.30$; moderate practical effect; $p \leq .001$) and between OCBI and job tenure ($r = -.16$; small practical effect; $p \leq .05$). No significant correlations were found between the rest of the variables.

7.4.1.4 Job type

Job type was negatively correlated with the overall WEIS scale ($r = -.18$; small practical effect; $p \leq .05$) and other's emotional appraisal (WEIS) ($r = -.17$; small practical effect; $p \leq .05$). No significant correlations were found between job type and the rest of the variables.

7.4.2 Bivariate correlations of the dependent and predictor variables

The bivariate correlational statistics for the dependent and independent variables were computed using Spearman's correlation, since the correlations involved the MBTI scores, which were categorical in nature. Table 7.14 shows the bivariate correlations for the dependent and predictor variables. The bivariate correlations were computed using SAS version 9.4 (SAS, 2013) and sought to test the following research hypotheses:

H1: There is a statistically significant positive correlation between each of the predictor variables of cognitive intelligence, trait emotional intelligence, ability emotional intelligence, and personality and the criterion of job performance.

Table 7.14

Bivariate Correlations of the Dependent and Predictor Variables

Variables	GAMA	Matching	Analogies	Sequence	Construction	WEIS	Self emotional appraisal	Others motional appraisal	Use of emotion	Regulation of emotion
GAMA										
Matching	.63***	-								
Analogies	.87***	.46***	-							
Sequence	.80***	.40***	.56***	-						
Construction	.64***	.26***	.49***	.39***	-					
WEIS	.31***	-.19*	.29***	.21***	-.20**	-				
Self emotional appraisal	.30***	.25***	.27***	-.20**	-.11	.64***	-			
Other's motional appraisal	.29***	-.14	.22***	.26***	.22***	.62***	.20**	-		
Use of emotion	-.16*	.04	.22***	-.10	-.13	.56***	.12	.20**	-	
Regulation of emotion	-.08	-.19**	-.06	.02	-.05	.61***	.41***	.14	.07	-
AES	.03	-.08	.06	.07	-.02	.06	-.04	.04	-.02	.18**
Perception of emotion	.12	.02	.11	.12	.05	.09	.02	-.04	.06	.19**
Managing own emotions	-.05	-.09	.00	-.02	-.06	.07	.01	.01	-.08	.26***
Managing others' emotion	-.00	-.14	.02	.05	-.01	.19*	.04	.13	.01	.26***
Utilisation of emotion	.06	-.03	.10	.07	-.01	-.12	-.16*	.08	-.10	-.04
Job Performance	.35***	.18*	.36***	.30***	.23**	.10	-.06	-.05	-.02	.18**
Task performance	.40***	.21**	.39***	.33***	.28***	.04	-.10	-.05	.07	.09
OCBI	.24**	.13	.26***	.23***	.17*	.13	-.02	.12	.10	.23*
OCBO	.17*	.13	.19**	.13	.08	.05	-.18	.08	-.10	.09
Extraversion–Introversion	-.06	.00	-.02	-.1	-.05	-.14	-.03	-.00	-.15*	-.16*
Sensing–Intuition	.06	.02	.09	-.07	.06	-.07	-.11	-.12	.12	-.06
Thinking–Feeling	-.14	-.10	-.05	-.15*	-.13	.14	.15*	.13	.08	.01
Judging–Perceiving	-.11	-.17*	-.07	-.11	-.01	.12	.19**	.02	.01	.12
Intuition–Thinking	.18*	.12	.16*	.08	.11	-.09	-.15*	-.01	-.03	-.01
Intuition–Feeling	-.19*	-.10	-.16*	-.09	-.14	.17*	.21**	.13	.08	.03
Sensing–Thinking	.18*	.13	.16*	.09	.13	-.16*	-.17*	-.15*	-.01	-.02
Sensing–Feeling	-.18*	-.06	-.13	-.12	-.14	.18*	.21**	.08	.12	.04

Variables	AES	Perception of emotion	Managing own emotions	Managing others' emotion	Utilisation of emotion	Job Performance	Task Performance	OCBI	OCBO
AES	-								
Perception of emotion	.78***	-							
Managing own emotions	.83***	.49***	-						
Managing others' emotion	.81***	.56***	.67***	-					
Utilisation of emotion	.67***	.40***	.48***	.41***	-				
Job Performance	.10	.15*	.04	.03	-.03	-			
Task performance	.15*	.20**	.04	.13	.09	.79***	-		
OCBI	.02	.07	.01	.07	-.08	.79***	.40***	-	
OCBO	.03	.06	.02	.05	-.06	.75***	.43***	.48***	-
Extraversion–Introversion	-.03	-.10	-.00	-.06	.08	-.08	-.14	-.00	-.03
Sensing–Intuition	.02	.04	.03	-.05	.01	.11	.11	.06	.07
Thinking–Feeling	.00	-.06	-.04	.06	-.00	-.13	-.04	-.13	-.14
Judging–Perceiving	.09	.02	.20**	.17*	-.02	.01	-.02	.06	-.11
Intuition–Thinking	-.09	.03	-.11	-.07	-.11	.08	-.02	.04	.13
Intuition–Feeling	.15*	-.17*	-.13	-.11	-.07	-.10	-.11	-.09	-.02
Sensing–Thinking	.05	.07	.07	-.02	.07	.15*	.13	.12	.08
Sensing–Feeling	.09	-.02	.11	.09	.09	-.10	.01	-.05	-.15*
Variables	Extraversion–Introversion	Sensing–Intuition	Thinking–Feeling	Judging–Perceiving	Intuition–Thinking	Intuition–Feeling	Sensing–Thinking	Sensing–Feeling	
Extraversion–Introversion	-								
Sensing–Intuition	-.00	-							
Thinking–Feeling	-.07	-.03	-						
Judging–Perceiving	.13	.05	.11	-					
Intuition–Thinking	-.01	-.14	-.54***	-.02	-				
Intuition–Feeling	-.03	-.27***	.51***	-.15*	-.23***	-			
Sensing–Thinking	.04	.23***	-.60***	.15*	.29***	-.86***	-		
Sensing–Feeling	.00	.13	.62***	.08	-.87***	.28***	-.34***	-	

Notes: *** $p \leq .001$; ** $p \leq .01$; * $p < .05$. Dummy codes: Extraversion–Introversion (0, 1), Sensing–Intuition (0, 1), Thinking–Feeling (0, 1), Judging–Perceiving (0, 1), Intuition–Thinking (0, 1), Intuition–Feeling (0, 1), Sensing–Thinking (0, 1), Sensing–Feeling (0, 1).

With reference to Table 7.14, the following sections report the results pertaining to the correlations between the overall scales and the subscales. The correlations between the overall subscales only will be given first. Thereafter, the correlations between the scales and their subscales will be outlined.

7.4.2.1 Correlation between the overall scales

In this section, the correlations of the overall scales for the predictor variables (cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality) and job performance will be reported on.

The overall GAMA and WEIS scales were negatively correlated at $r = -.31$; moderate practical effect, $p \leq .001$. The overall GAMA and job performance scale were significantly correlated at $r = .35$; moderate practical effect, $p \leq .001$. In terms of the MBTI, positive correlations were found between the GAMA and intuition–thinking ($r = .18$; small practical effect, $p \leq .05$) and GAMA and sensing–thinking ($r = .18$; small practical effect, $p \leq .05$). The relationship between GAMA and intuition–feeling ($r = -.19$; small practical effect, $p \leq .05$) and GAMA and sensing–feeling ($r = -.18$; small practical effect, $p \leq .05$) was negative. No significant correlations were found between the overall GAMA and the AES scales.

Similarly, no significant correlations were found between the overall WEIS and AES scales and between the WEIS and the overall job performance scores. In terms of personality, positive significant correlations were found between the WEIS and sensing–feeling ($r = .18$; small practical effect, $p \leq .05$) and the WEIS and intuition–feeling ($r = .17$; small practical effect, $p \leq .05$). By contrast, the WEIS was negatively correlated with the sensing–thinking dichotomy ($r = -.16$; small practical effect; $p \leq .05$).

There was no significant correlation between the AES and job performance overall scales. In terms of personality, the AES overall scale was positively correlated with the MBTI intuition–feeling ($r = .15$; small practical effect, $p \leq .05$). The MBTI sensing–thinking dichotomy was found to be positively correlated with the job performance overall score ($r = .15$; small practical effect, $p \leq .05$).

7.4.2.2 Correlation between the GAMA and its subscales

The correlations between the GAMA and its subscales were significantly positive. The correlation between GAMA and the Analogies subscales was the highest at $r = .87$; large practical effect, $p \leq .001$, followed by sequences ($r = .80$; large practical effect, $p \leq .001$), construction ($r = .64$; large practical effect, $p \leq .001$) and lastly by matching ($r = .63$ large to large practical effect, $p \leq .001$). The correlations between the GAMA subscales were significantly positive and ranged from $r = .26$; small practical effect, $p \leq .001$ to $r = .56$; large practical effect, $p \leq .001$.

7.4.2.3 Correlation between the GAMA and the WEIS and their subscales

The overall GAMA and WEIS scales were negatively correlated at $r = -.31$; moderate practical effect, $p \leq .001$. No significant correlations were found between the GAMA and regulation of emotion, matching and other's emotional appraisal, matching and use of emotion, analogies and regulation of emotion, sequences and use of emotion, sequences and regulation of emotion, construction and use of emotion, and construction and regulation of emotion. The rest of the correlations were negative and ranged from $r = -.29$; small practical effect, $p \leq .05$ to $r = -.16$; small practical effect, $p \leq .001$)

7.4.2.4 Correlation between the GAMA and AES and their subscales

No significant correlation was found between the overall scores for the GAMA and the AES or the GAMA and AES subscales.

7.4.2.5 Correlation between the GAMA and the Job Performance Scale and their subscales

The overall GAMA and job performance scale were significantly correlated at $r = .35$; moderate practical effect, $p \leq .001$. In terms of the relationship between the overall GAMA and the job performance subscales, the overall GAMA score and task performance produced the highest correlation ($r = .40$; moderate practical effect, $p \leq .001$), followed by GAMA and OCBI ($r = .24$; small practical effect, $p \leq .01$), and then by GAMA and OCBO ($r = .17$; small practical effect, $p \leq .05$). The relationship between the subscales of matching and OCBI, matching and OCBO, sequences and OCBO, and construction and OCBO were not significant. For the rest of the subscales, there were significant positive correlations and ranged from $r = .17$; small practical effect, $p \leq .01$ to $r = .39$; moderate practical effect, $p \leq .001$.

7.4.2.6 Correlation between the GAMA and its subscales and the MBTI subscales

Significant positive correlations were found between the GAMA and intuition–thinking, GAMA and sensing–thinking, analogies and sensing–thinking, and analogies and intuition–thinking, ranging from $r = .16$; small practical effect, $p \leq .05$ to $r = .18$; small practical effect, $p \leq .05$. The relationship between GAMA and intuition–feeling, GAMA and sensing–feeling, matching and judging–perceiving, analogies and intuition–feeling, and sequences and thinking–feeling was negative and ranged from $r = -.19$; small practical effect, $p \leq .05$ to $r = -.15$; small practical effect, $p \leq .05$. The rest of the correlations were not significant.

7.4.2.7 Correlation between the WEIS and its subscales

For the WEIS and its subscales, positive correlations were found between the overall WEIS and all its four subscales (self emotional appraisal, other's emotional appraisal, use of emotion, and regulation of emotion), ranging from $r = .56$; moderate practical effect, $p \leq .001$ to $r = .64$; large practical effect, $p \leq .001$). In terms of the bivariate correlations between the WEIS subscales, positive correlations were also found between self emotional appraisal and other's emotional appraisal and use of emotion, and self emotional appraisal and regulation of emotion, ranging from $r = .20$; small practical effect, $p \leq .01$ to $r = .41$; moderate practical effect, $p \leq .001$). The regulation of emotion and other's emotional appraisal, and the regulation of emotion and use of emotion subscales were not significantly correlated.

7.4.2.8 Correlation between the WEIS and the AES and their subscales

The overall WEIS scale and managing others' emotions (AES) were positively correlated ($r = .19$; small practical effect, $p \leq .05$). The AES subscales of perception of emotion, managing own emotions and managing others' emotions were all positively correlated with the WEIS subscale of regulation of emotion, with coefficients ranging from $r = .18$; small practical effect, $p \leq .01$ to $r = .26$; small practical effect, $p \leq .001$, respectively. The AES self emotional appraisal and the WEIS utilisation of emotion were negatively correlated ($r = -.16$; small practical effect, $p \leq .05$).

7.4.2.9 Correlation between the WEIS and the Job Performance scale and their subscales

In terms of job performance, only regulation of emotion (WEIS) was significantly correlated with the overall job performance score and OCBI at $r = .18$; small practical effect, $p \leq .01$ and

$r = .23$; small practical effect, $p \leq .05$, respectively. The rest of the correlations between the WEIS and job performance and their subscales were not significant.

7.4.2.10 Correlation between the WEIS and its subscales and the MBTI subscales

Significant positive correlations were found between the overall WEIS scale and the MBTI subscales of sensing–feeling and intuition–feeling, and the WEIS self emotional appraisal and the MBTI subscales of sensing–feeling, intuition–feeling, judging–perceiving, and thinking–feeling; ranging from $r = .15$; small practical effect, $p \leq .05$ to $r = .21$; small practical effect, $p \leq .01$.

Negative correlations were found between the overall WEIS and sensing–thinking, the WEIS regulation of emotion and extraversion–introversion, use of emotion and extraversion–introversion, self emotional appraisal and intuition–thinking, self emotional appraisal and sensing–thinking, other’s emotional appraisal and sensing–thinking, and overall WEIS and sensing–thinking. The negative correlations ranged from $r = -.17$; small practical effect, $p \leq .05$ to $r = -.15$; small practical effect, $p \leq .05$.

7.4.2.11 Correlation between the AES and its subscales

The overall AES scale and its subscales were positively related, with correlation coefficients ranging from $r = .40$; moderate practical effect, $p \leq .001$ to $r = .83$; large practical effect, $p \leq .001$.

7.4.2.12 Correlation between the AES and the Job Performance Scale and their subscales

Positive correlations were found between the overall AES and task performance and the perception of emotion subscale and overall job performance, both at $r = .15$; small practical effect, $p \leq .05$. The relationship between perception of emotion and task performance was $r = .20$; small practical effect, $p \leq .01$. The rest of the scales showed no significant correlations.

7.4.2.13 Correlation between the AES and its subscales and the MBTI subscales

The results show that the judging–perceiving dichotomy was correlated with managing own emotions and managing others’ emotions at $r = .20$; small practical effect, $p \leq .01$ and $r = .17$; small practical effect, $p \leq .05$. Intuition–feeling was correlated with perception of emotion at r

= -.17; small practical effect, $p \leq .05$. The overall AES scale was positively correlated with intuition-feeling ($r = .15$; small practical effect, $p \leq .05$)

7.4.2.14 Correlation between the job performance scale and its subscales

The overall job performance scale and its subscales were positively correlated with correlation coefficients ranging from $r = .40$; moderate practical effect, $p \leq .001$ to $r = .79$ large practical effect, $p \leq .001$.

7.4.2.15 Correlation between the job performance scale and its subscales and the MBTI subscales.

The sensing–thinking dichotomy was significantly correlated with the overall job performance scale at $r = .15$; small practical effect, $p \leq .05$, indicating that the thinking personality type was positively related to job performance. However, a negative correlation was found between sensing–feeling and OCBO ($r = -.15$; small practical effect, $p \leq .05$), showing that the sensing personality type was negatively correlated with OCBO while the feeling personality type was positively correlated with OCBO. The rest of the correlations were not significant.

7.4.2.16 Correlation between the MBTI subscales

Significant positive correlations were found between intuition–feeling and thinking–feeling, sensing–thinking and sensing–intuition, sensing–thinking and intuition–thinking, sensing–feeling and thinking–feeling, sensing–thinking and judging–perceiving, and sensing–feeling and intuition–feeling, ranging from $r = .15$; small practical effect, $p \leq .05$ to $r = .62$; large practical effect, $p \leq .001$.

Intuition–feeling and sensing–intuition, intuition–feeling and judging–perceiving, sensing–thinking and thinking–feeling, sensing–feeling and sensing–thinking, sensing–feeling and intuition–thinking, intuiting–feeling and intuition–thinking, and sensing–thinking and intuition–feeling produced significant negative correlations, ranging from $p \leq .05$; $r = -.87$; large practical effect, $p \leq .001$ to $r = -.15$; small practical effect).

Since either the overall scale or the subscales of the predictor variables were significantly correlated with the either the overall job performance scale or its subscales, the results of the correlational analysis provided evidence in support of research hypothesis H1.

H1: There is a statistically significant positive correlation between each of the predictor variables of cognitive intelligence, trait emotional intelligence, ability emotional intelligence, and personality and the criterion of job performance.

7.5 INFERENCE (MULTIVARIATE) STATISTICAL ANALYSIS

Inferential statistical analyses were performed in three steps as follows:

Step 1: Structural equation modelling (SEM) and path analysis

Step 2: Stepwise logistic regression analysis and hierarchical moderated regression analysis

Step 3: Tests for significant mean differences

The following section reports the multivariate statistical analysis using SEM.

7.5.1 Structural equation modelling (SEM) and path analysis

This section reports the results of the SEM prediction models. SEM and path analysis were performed using SAS version 9.4 (SAS, 2013) and sought to test the following research hypotheses:

H2: The predictor variables of cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality significantly predict job performance.

H3: The theoretically hypothesised personnel selection model has a good fit with the empirically manifested personnel selection model.

Some assumptions were made pertaining to the characteristics of the empirically manifested personnel selection model. As hypothesised, one assumption was that the predictor variables significantly predicted job performance. Another assumption was that the empirically manifested personnel selection model had a good fit with the data. Still another assumption was that the four predictor variables were theoretically distinct from each other. The researcher also sought to test the assumption of a rank order for the predictive power of the predictor variables, where cognitive intelligence was hypothesised to be the best predictor of job

performance, followed by ability emotional intelligence, then by trait emotional intelligence and, lastly, by personality.

In terms of the relationship between the predictor variables, the bivariate correlations presented in Table 7.14 show that the correlations between the overall predictor (independent) variables ranged from $r = -.31$; $p \leq .001$, moderate practical effect to $r = .18$; $p \leq .001$, small practical effect. The correlations are lower than $r = .80$, indicating the absence of multicollinearity and, thus, providing evidence that the predictor constructs were distinct from each other.

To test the other assumptions of the empirically manifested personnel selection model, SEM models were performed and will be reported in three steps. Firstly, the SEM fit statistics will be presented to determine whether the SEM models showed good fit with the data. Secondly, the path coefficients for the four competing SEM models and the variance in job performance accounted for by each of the predictors in the models will be presented. The third step reports the chi-square comparison tests to determine the best SEM prediction model to be adopted for the study.

7.5.1.1 The SEM models: fit statistics

Four SEM models were run in order to test hypotheses H2 and H3. The model variables and model fit statistics of the four SEM models are presented in Table 7.15.

Table 7.15

Model Fit Statistics: Structural Equation Models

Model	Variables	Chi-square	df	<i>p</i>	RMSEA	SRMR	CFI
1	Cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality	318.99	253	<.0001	.05	.07	.92
2	Cognitive intelligence, ability emotional intelligence, and trait emotional intelligence.	156.95	84	<.0001	.05	.05	.94
3	Ability emotional intelligence and trait emotional intelligence.	85.09	41	<.0001	.06	.06	.93
4	Ability emotional intelligence, trait emotional intelligence, and personality	216.4	139	<.0001	.06	.07	.93

The results in Table 7.15 show that all the models had good fit statistics because all the models were significant ($p \leq .001$), the RMSEA and SRMR were below .08, and the CFI was above .90.

The next section reports the path coefficients and variance in job performance accounted for by the four SEM models.

7.5.1.2 *The four SEM models: the path coefficients and variance in explaining job performance*

The SEM Model 1

The first SEM model consisted of the four predictor variables of cognitive intelligence (GAMA), ability emotional intelligence (WEIS), trait emotional intelligence (AES), and personality (MBTI) and the criterion variable of job performance. As shown in Table 7.16, SEM Model 1 showed good fit (chi-square of 318.99 (df 253); $p \leq .001$; RMSEA = .05, SRMR = .07; CFI = .92. As part of efforts to determine model fit from a predictive perspective, standardised path coefficients (including the variance in job performance explained by each of the predictor variables of GAMA, WEIS, AES, and MBTI) were assessed. Table 7.16 shows a summary of

the outcome of the standardised path coefficients and the variance in job performance accounted for by the predictors in SEM Model 1.

Table 7.16

Standardised Path Coefficients for the Empirical SEM (Personnel Selection Model): Model 1

Measurement Scale	Latent (Predictor / Independent Variable)	Criterion / Dependent Variable	β	R^2	Standard Error	t-value
GAMA	Cognitive intelligence	Job performance	.80	.65	.20	4.03**
WEIS	Ability emotional intelligence	Job performance	.64	.41	.24	2.66**
AES	Trait emotional intelligence	Job performance	.00	.00	.11	.02
MBTI	Personality	Job performance	.22	.05	.11	1.97*

Notes: $N = 299$. t -values > 2.56 ($p \leq .01$)**; t -values > 1.96 ($p \leq .05$)*.

Table 7.16 shows that apart from trait emotional intelligence (AES), the predictor variable factor loadings (path coefficients) of cognitive intelligence (GAMA) ($\beta = .80$; positive pathway; $R^2 = .65$; large practical effect), ability emotional intelligence (WEIS) ($\beta = .64$; positive pathway; $R^2 = .41$; large practical effect), and personality (MBTI) ($\beta = .22$; positive pathway; $R^2 = .05$; small practical effect) loaded significantly onto job performance. In terms of predictive power, cognitive intelligence had the highest beta coefficient ($\beta = .80$; $R^2 = .65$; $p \leq .001$; large practical effect), indicating that it explained most of the variance (65%) in job performance compared to the other predictors. Ability emotional intelligence was the second best predictor of job performance ($\beta = .64$; $R^2 = .41$; $p \leq .001$; large practical effect), accounting for 41% of the variance in job performance. The third best predictor of job performance was personality ($\beta = .22$; $R^2 = .05$; $p \leq .05$; small practical effect), accounting for 5% of the variance in job performance. Trait emotional intelligence did not show any predictive power regarding job performance ($\beta = .00$; $R^2 = .00$; $p > .05$).

The SEM Model 2

The second SEM model consisted of the predictor variables of cognitive intelligence (GAMA), ability emotional intelligence (WEIS), and trait emotional intelligence (AES), predicting job performance. As shown in Table 7.15, fit indices with chi-square of 156.95 (df 84); $p \leq .001$;

RMSEA = .05, SRMR = .05; CFI = .94) showed model fit. Path coefficients for Model 2 are provided in Table 7.17.

Table 7.17

Standardised Path Coefficients for the Empirical SEM (Personnel Selection Model): Model 2

Measurement Scale	Latent (Predictor / Independent Variable)	Criterion / Dependent Variable	β	R^2	Standard Error	t-value
GAMA	Cognitive intelligence	Job performance	.73	.54	.07	9.89***
WEIS	Ability emotional intelligence	Job performance	.32	.10	.10	3.25**
AES	Trait emotional intelligence	Job performance	-.03	.00	.08	-.40

Notes: $N = 299$. t -values > 2.56 ($p \leq .01$)**; t -values > 1.96 ($p \leq .05$)*.

Table 7.17 shows that apart from trait emotional intelligence (AES) ($\beta = -.03$; negative pathway; $R^2 = .00$), predictor variable factor loadings (path coefficients) of cognitive intelligence (GAMA) ($\beta = .73$; positive pathway; $R^2 = .54$; large practical effect) and ability emotional intelligence (WEIS) ($\beta = .32$; positive pathway; $R^2 = .10$; small practical effect) loaded significantly onto the job performance criterion. In terms of prediction of job performance, cognitive intelligence had the highest beta coefficient ($\beta = .73$; $R^2 = .54$; $p \leq .01$; large practical effect), indicating that it explained 54% of the variance in job performance. Ability emotional intelligence was the second best predictor of job performance ($\beta = .32$; $R^2 = .10$; $p \leq .01$; small practical effect), accounting for 10% of the variance in job performance. Trait emotional intelligence did not show any predictive power regarding job performance ($\beta = -.03$; $R^2 = .00$; $p > .05$).

The SEM Model 3

Only two predictor variables (AES and WEIS) were included in the third SEM model (Model 3). As shown in Table 7.15, fit indices (chi-square = 85.09 (df 41); $p \leq .001$; RMSEA = .06, SRMR = .06; CFI = .93) showed model fit. Table 7.18 also shows the path coefficients for Model 3.

Table 7.18

Standardised Path Coefficients for the Empirical SEM (Personnel Selection Model): Model 3

Observed / Manifest Variable	Latent Variable	Criterion / Dependent Variable	β	R^2	Standard Error	t-value
WEIS	Ability emotional intelligence	Job performance	.07	.00	.09	.74
AES	Trait emotional intelligence	Job performance	.00	.00	.08	-.02

Notes: $N = 299$. t -values > 2.56 ($p \leq .01$)**; t -values > 1.96 ($p \leq .05$)*.

Table 7.18 shows that neither ability emotional intelligence ($\beta = .07$; $R^2 = .00$; $p > .05$) nor emotional intelligence ($\beta = .00$; $R^2 = .00$; $p > .05$) explained any variance in job performance.

The SEM Model 4

The fourth SEM model consisted of ability emotional intelligence, trait emotional intelligence and personality, predicting job performance. As shown in Table 7.15, the model had good fit (chi-square = 216.40 (df 139); $p \leq .001$; RMSEA = .06, SRMR = .07; CFI = .93). Table 7.19 shows the path coefficients for SEM Model 4.

Table 7.19

Standardised Path Coefficients for the Empirical SEM (Personnel Selection Model): Model 4

Measurement Scale	Latent (Predictor / Independent Variable)	Criterion / Dependent Variable	β	R^2	Standard Error	t-value
WEIS	Ability emotional intelligence	Job performance	.19	.04	.14	1.37
AES	Trait emotional intelligence	Job performance	.05	.00	.10	.52
MBTI	Personality	Job performance	.24	.06	.10	2.42*

Notes: $N = 299$. t -values > 2.56 ($p \leq .01$)**; t -values > 1.96 ($p \leq .05$)*.

Table 7.19 shows that only personality ($\beta = .24$; positive pathway; $R^2 = .06$; small practical effect) loaded significantly onto the job performance variable. In contrast, ability emotional intelligence ($\beta = .39$; positive pathway; $R^2 = .04$), and trait emotional intelligence ($\beta = .05$; positive pathway; $R^2 = .00$) did not load significantly onto job performance criterion. Personality had the highest beta coefficient ($\beta = .24$; $R^2 = .06$; $p \leq .05$; small practical effect) and accounted for 6% of the variance in job performance. Ability emotional intelligence and trait emotional intelligence did not account for any variance in job performance.

One of the assumptions of the predictive analysis was to ascertain whether ability emotional intelligence could compensate for cognitive intelligence in predicting job performance. To achieve this objective, a simple linear regression model was run to determine whether ability emotional intelligence had incremental validity beyond cognitive intelligence. Table 7.20 below illustrates the regression analysis.

Table 7.20

Testing for the Incremental Validity of Ability Emotional Intelligence beyond Cognitive Intelligence

Variable / Statistic	R^2	p -values
Cognitive intelligence	.22	.001
Ability emotional intelligence	.03	.001
Shared variance	.21	.001
ΔR^2	-.01	

The results in Table 7.20 indicate that ability emotional intelligence could not account for incremental validity beyond cognitive intelligence in predicting job performance ($\Delta R^2 = -.01$).

In conclusion, the results obtained from the SEM show that cognitive intelligence was the best predictor of job performance, indicating that it has the highest fidelity in predicting job performance. Testing for the incremental validity of ability emotional intelligence above cognitive intelligence was done. The results revealed that ability emotional intelligence could not account for additional variance in job performance beyond cognitive intelligence. However, the low reliability coefficients of the WEIS could have affected its predictive validity. This

means that ability emotional intelligence cannot compensate for cognitive intelligence in predicting job performance. However, ability emotional intelligence was found to be the second best predictor of job performance and personality was the third. Furthermore, trait emotional intelligence could not account for any variance in job performance. It should be noted that ability emotional intelligence predicted job performance better than personality in SEM models that included cognitive intelligence (SEM 1 and 2). In SEM Model 4, which did not include cognitive intelligence, personality predicted job performance better than ability emotional intelligence. The results from the SEM may also need to be reported on in terms of the criteria and assumptions for the personnel selection model. In terms of fit statistics, all SEM models satisfied the criteria for the personnel selection model as hypothesised. However, trait emotional intelligence did not account for any variance in job performance. Thus, the assumption that all predictor variables in the model should predict job performance was not met. From a theoretical perspective, it was assumed that the power of the predictor variables in predicting job performance would be ranked from the best to the least predictor as follows:

Cognitive intelligence, ability emotional intelligence, trait emotional intelligence,
personality

For the empirically manifested personnel selection model, the predictive power of the predictor variables was ranked as follows:

Cognitive intelligence, ability emotional intelligence, personality, trait emotional
intelligence

Thus, the assumption on the levels of the predictive power of the predictor variables was partly met.

Choosing the best SEM prediction model required the researcher to compute the chi-square comparisons tests so that the best model could be chosen as the SEM prediction model for the study. The next section reports on the chi-square difference tests.

The chi-square comparisons tests

Model 1 showed that cognitive intelligence and ability emotional intelligence were significant predictors of job performance with large practical effect. Personality significantly predicted job performance, but with a small practical effect, whereas trait emotional intelligence could not

explain any variance in job performance. In terms of Model 2, cognitive intelligence was a significant predictor of job performance (large practical effect), with emotional intelligence also significantly predicting job performance, but with small practical effect. Trait emotional intelligence was not a significant predictor of job performance. Model 3, consisting of ability emotional intelligence and trait emotional intelligence had non-significant path loadings, showing that on their own, the two types emotional intelligence were not significant predictors of job performance. For Model 4, only personality had significant path loading, but with small practical effect. Against this background, the chi-square comparison test was only performed for Models 1 and 2. Model 2 excluded personality and thus, it was necessary to assess whether Models 1 and 2 differed significantly and which one of the two was a better model. It was not necessary to include Model 3 for the chi-square comparison test because of non-significant path loading. Model 4 was also excluded because of the three predictors (personality, ability emotional intelligence, and trait emotional intelligence), only personality had significant path loading but with a small practical effect.

The chi-square comparison test for Models 1 and 2 is shown in Table 7.21

Table 7.21

Chi-square Comparison: Model 1 and Model 2

	Model 1	Model 2	Diff	<i>p</i>-value
Chi-square	318.99	156.95	162.04	.64
df	253.00	84.00	169.00	

Table 7.21 shows that Model 1 and Model 2 ($p = .64$) did not differ significantly from each other. This implies that both models (Model 1 with all the four variables and Model 2, excluding personality) have relatively equal strength in predicting job performance. This also implies that cognitive and ability emotional intelligence remain the strongest predictors of job performance, even if personality excluded.

Conclusions on the chi-square comparison tests

SEM Model 1 included all predictor measures for the study, namely, cognitive intelligence ($R^2 = .65$; large practical effect), ability emotional intelligence ($R^2 = .41$; large practical effect), trait

emotional intelligence ($R^2 = .00$), and personality ($R^2 = .05$; small practical effect). SEM Model 2 consisted of cognitive intelligence ($R^2 = .54$; large practical effect), ability emotional intelligence ($R^2 = .10$; moderate practical effect), and trait emotional intelligence ($R^2 = .00$). However, when compared to Model 1, Model 2 had lower predictive power since the potential incremental validity of 11% (65% minus 54%) from cognitive intelligence would be lost if Model 2 were chosen ahead of Model 1. In terms of ability emotional intelligence for Model 2, 31% of the variance in explaining job performance would be lost if Model 2 were chosen instead of Model 1. Moreover, the exclusion of personality in Model 2 might lead to the loss of potential variance (5%) in explaining job performance if Model 2 were chosen ahead of Model 1. The results of Model 1 indicate that cognitive intelligence, supplemented by the other constructs (personality and ability emotional intelligence), present a better personnel selection battery. Thus, the researcher chose Model 1 as the SEM prediction model for the study. Figure 7.1 illustrates SEM Model 1.

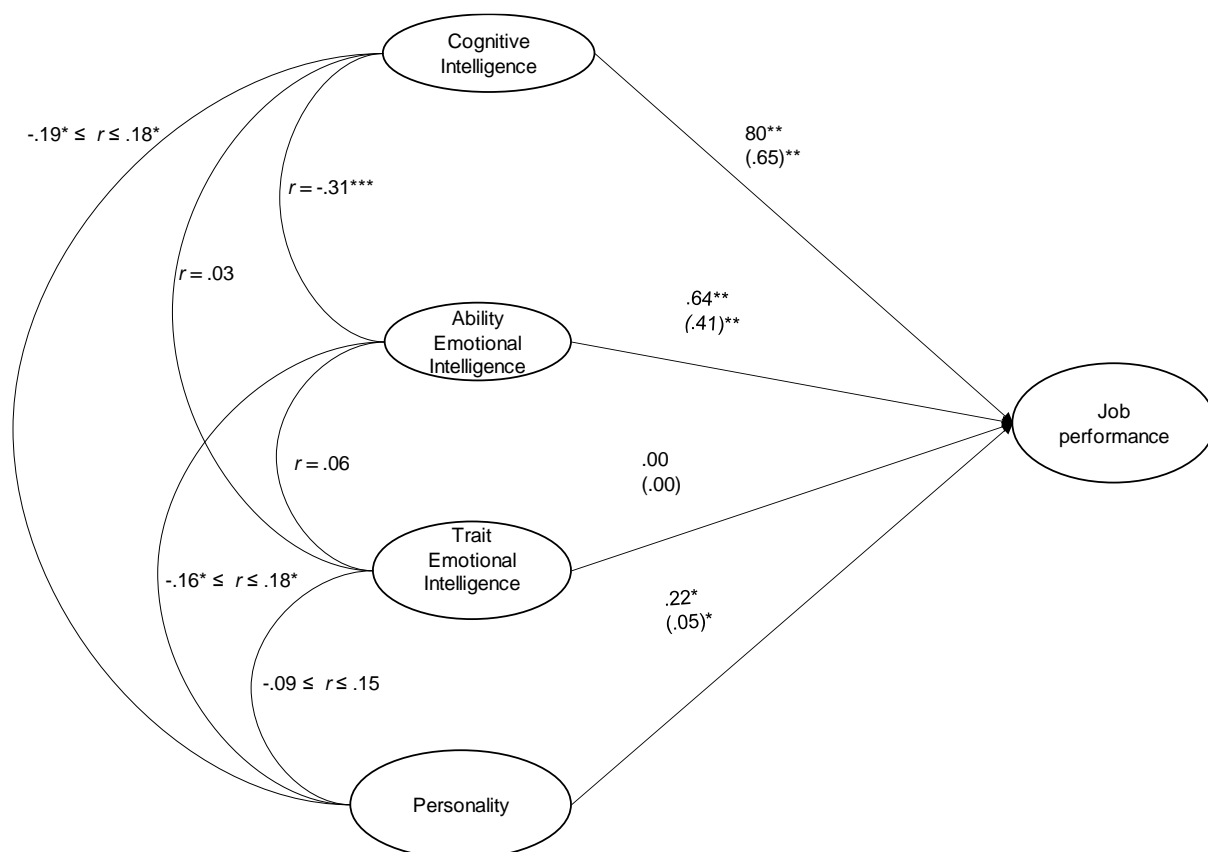


Figure 7.1: The SEM prediction model: Model 1

Notes:

- The bivariate correlations reported in Table 7.14 and the multifactor measurement model CFA were used to determine whether the predictor variable constructs were distinct from each other. Since the MBTI did not have a global score, the range of bivariate correlations between the three constructs of cognitive intelligence (GAMA), ability emotional intelligence (WEIS), and trait emotional intelligence (AES), on the one hand, and the eight personality (MBTI) dichotomies (extraversion–introversion, sensing–intuition, thinking–feeling, judging–perceiving, intuition–thinking, intuition–feeling, sensing–thinking, and sensing–feeling) on the other, were provided.

The evaluation of the chosen empirically manifested personnel selection model in terms of the criteria for a personnel selection model may need to be restated. The empirically manifested personnel selection model had good fit with the data. In terms of predictive validity, only trait emotional intelligence failed to predict job performance. Concerning the predictive power of the predictor variables, cognitive intelligence was found to be the best predictor of job performance (large practical effect), followed by ability emotional intelligence (large practical effect), then by personality (small practical effect), and lastly, by trait emotional intelligence (which did not account for any variance in job performance). Regarding whether the predictor variables were distinct from each other, the bivariate correlations between the predictor variables ranged from $r = -.31$; $p \leq .001$; moderate practical effect to $r = .18$; $p \leq .001$; small practical effect, indicating that no multicollinearity was present and thus, demonstrating that the predictor variables are theoretically distinct from each other. The CFA indices for the measurement model also showed good model fit, indicating that the measures had good construct validity. The implications of the characteristics of the empirically manifested personnel selection model will be discussed in Chapter 8.

Thus, the results of SEM provide partial evidence in support of the research hypotheses H2 and H3.

H2: The predictor variables of cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality significantly predict job performance.

H3: The theoretically hypothesised personnel selection model has a good fit with the empirically manifested personnel selection model.

The next step was to test research hypotheses H4, using stepwise logistic regression and hierarchical moderated regression analyses.

7.5.2 Stepwise logistic regression analysis

Stepwise logistic regression analysis was used as the initial step in testing hypothesis H4. Since there were a number of sociodemographic variables relevant for the study, stepwise regression analysis was performed using SAS Version 9.4 (SAS, 2013) to identify the best sociodemographic variables in predicting job performance. Hypothesis 4 was stated as follows:

H4: There is a significant interaction effect between the predictor variables (cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality, respectively) and the sociodemographic variables of age, gender, job tenure, and job type in predicting job performance.

The next section discusses the stepwise logistic regression analysis.

7.5.2.1 Stepwise logistic regression analysis results: sociodemographic variables as predictors of job performance

Stepwise logistic regression analysis with backward elimination (likelihood estimation) using the binary logistic procedure of IBM SPSS Version 22.0 (IBM SPSS, 2013) was performed to tests whether each of the sociodemographic variables of age, gender, job tenure, and job type were significant predictors of job performance.

In performing the stepwise logistic regression analysis, the statistical procedure starts by computing regression analysis with all the available variables, and then the system automatically drops the weakest and non-significant predictors at each successive step. The regression model and the associated statistics assisted in determining the overall regression model fit, the significance of the path loadings, and the model's shared variance in explaining job performance. The stepwise logistic regression analysis terminated on step 3 and showed that job tenure, and job type were significant predictors of job performance (Table 7.23). However, it is necessary to report the model statistics first before explaining the path loadings.

The Omnibus chi-square tests of model coefficients was computed to determine whether the regression model showed improvement in model fit compared to the null model, and the results are presented in Table 7.22.

Table 7.22

The Omnibus Chi-square Test of Model Coefficients: The Sociodemographic Variables as Predictors of Job Performance

Parameter	Chi-square	df	<i>p</i> value
Step	-1.20	1	.27
Block	23.95	2	.00
Model	23.95	2	.00
Cox and Snell R^2 = .08			
Nagelkerke R^2 = .10			

The Model Step chi-square value was negative (chi-square = -1.20; df 1; p = .75). However, since the chi-square was not significant (p = .27), it indicates that the decrease in the chi-square value did not significantly reduce the model fit compared to the model of the previous regression analyses of the previous steps. Moreover, the p values corresponding to the Block and Model chi-squares for the regression model were both significant ($p \leq .001$), demonstrating that the model showed improvement in model fit from the null model. The Cox and Snell R^2 (R^2 = .08; small practical effect) and the Nagelkerke R^2 (R^2 = .10; small practical effect) indicate that between 8% and 10% of the variance in job performance can be explained by the regression model (small practical effect). Table 7.23 reports the path loadings for the stepwise logistic regression analysis.

Table 7.23

Stepwise Logistic Regression Analysis Results: Sociodemographic Variables as Predictors of Job Performance

Variables	β	R^2	S.E.	Wald	df	<i>p</i> value
Job Tenure	-.99	.98	.24	19.92	1.00	.00
Job Type	.47	.22	.24	3.72	1.00	.05
Constant	.23	.05	.19	1.37	1.00	.24
Cox and Snell R^2 = .08						
Nagelkerke R^2 = .10						

Table 7.23 shows that job tenure was the strongest predictor of job performance (Chi-square = 19.92; $\beta = .99$; $p \leq .001$; $R^2 = .98$; large practical effect; $p \leq .001$), followed by job type (Chi-square = 3.72; $\beta = .47$; $p \leq .01$; $R^2 = .22$; large practical effect; $p \leq .05$). Gender and age were not significant predictors of job performance.

In summary, stepwise logistic regression analysis showed that only job tenure and job type were significant predictors of job performance, while age and gender were not. The chi-square goodness of fit tests showed overall regression analysis model fit. Thus, the sociodemographic variables of job tenure and job type could be confidently used for the next step of predictive analysis, that is, hierarchical moderated regression analysis.

7.5.3 Hierarchical moderated regression analysis

Using the PROCESS procedure in SAS Version 9.4 (Hayes, 2013), hierarchical moderated regression analysis was performed to determine the extent of moderation/interaction effects between the significant sociodemographic variables (age, job tenure, and job type) and the predictor variables in predicting job performance. Hierarchical moderated regression analysis was performed as follows:

- Cognitive intelligence (predictor variable), job tenure and job type (moderator variables), and job performance (criterion variable) (two models)
- Ability emotional intelligence (predictor variable), job tenure and job type (moderator variables), and job performance (criterion variable) (two models).
- Personality (predictor variable), job tenure and job type (moderator variables), and job performance (criterion variable) (16 models).

Since trait emotional intelligence (measured by the AES) did not significantly predict job performance as indicated by SEM (Figure 7.1), no hierarchical moderated regression analysis was performed on age, job tenure, and job type, and trait emotional intelligence, as predictors of job performance.

Since 20 models of hierarchical moderated regression analysis were run, only full models that resulted in significant moderation will be reported. However, interaction terms will be reported on for all 20 models. The next section reports the hierarchical moderated regression analysis.

7.5.3.1 Examining the effects of sociodemographic variables (job tenure and job type) and cognitive intelligence on job performance

Two models were tested to determine the interaction effects between cognitive intelligence and each of the sociodemographic variables (job tenure and job type) in predicting job performance. Since results showed no significant interaction effects between both of the sociodemographic variables and cognitive intelligence in predicting job performance, only interaction terms were reported. Table 7.24 reports the interaction terms for the hierarchical moderated regression analysis testing the interaction between cognitive intelligence, and job tenure and job type in predicting job performance

Table 7.24

Moderated Regression Analysis Examining the Effects of Job Tenure and Job Type, and Cognitive Intelligence on Job Performance: Interaction Terms

Variable	β	SE	t	p	Bootstrapping (95% CI)	
					LLCI	ULCI
Cognitive intelligence x job tenure	.00	.00	-1.21	.60	-.00	.00
$F = .28; \Delta R^2 = .00$						
Cognitive intelligence x job type	.01	.01	.36	.72	-.01	.01
$F = .13; \Delta R^2 = .00$						

Notes: CI Confidence interval; LLCI Lower level confidence interval; ULCI Upper level confidence interval

As indicated in Table 7.24, no p value was $\leq .05$ and the bootstrap LLCI and ULCI ranges included zero indicating non-significant effects. Thus, there were no significant interaction effects between the sociodemographic variables (job tenure and job type) and cognitive intelligence in predicting job performance.

7.5.3.2 Examining the effects of sociodemographic variables (age, job tenure, and job type) and ability emotional intelligence on job performance

This section reports the results obtained from examining the interaction effects between sociodemographic variables (age, job tenure, and job type) and ability emotional intelligence

in predicting job performance. Table 7.25 shows the results of examining the interaction effects.

Table 7.25

Moderated Regression Analysis Examining the Effects of Job Tenure and Job Type, and Ability Emotional Intelligence on Job Performance: Interaction Terms

Variable	β	SE	t	p	Bootstrapping (95% CI)	
					LLCI	ULCI
Ability emotional intelligence x job type	-.01	.01	.54	.59	-.16	.03
$F = .29$; $\Delta R^2 = .00$						
Ability emotional intelligence x job tenure	.002	.001	2.81	.01	.00	.00
$F = 7.88^{**}$; $\Delta R^2 = .03$						

Table 7.25, shows that the bootstrap LLCI and ULCI ranges included zero indicating non-significant effects. Thus, there were no significant interaction effects between the sociodemographic variables and ability emotional intelligence in predicting job performance.

7.5.3.3 Examining the effects of sociodemographic variables (job tenure and job type) and personality on job performance

This section reports the results obtained from examining the interaction effects between sociodemographic variables (job tenure and job type) and personality in predicting job performance, Table 7.26 shows that there were significant interaction effects between extraversion–introversion and job type, and judging–perceiving and job tenure.

Table 7.26

Moderated Regression Analysis Examining the Effects of Job Tenure and Job Type, and MBTI dichotomies: Interaction Terms

MBTI Dichotomy	Variable	β	SE	t	p	Bootstrapping (95% CI)	
						LLCI	ULCI
Extraversion–Introversion (EI)	EI x Job Type $F = 7.86^{**}$; $\Delta R^2 = .03$	-.23	.08	-2.8	.005	-0.4	-0.07
	EI x Job Tenure $F = .61$; $\Delta R^2 = .00$	.00	.00	-.78	.44	-.01	.01
Sensing–Intuition (SN)	SN x Job type $F = .16$; $\Delta R^2 = .00$	-.21	.53	-.4	.6	-1.24	.83
	SN x Job tenure $F = .41$; $\Delta R^2 = .00$	-.02	.03	-.64	.52	-.08	.04
Thinking–Feeling (TF)	TF x Job type $F = 2.06$; $\Delta R^2 = .01$	.13	.09	1.43	.15	-.05	.3
	TF x Job tenure $F = .68$; $\Delta R^2 = .01$	.00	.00	.82	.41	-.01	.01
Judging–Perceiving (JP)	JP x Job type $F = .06$; $\Delta R^2 = .00$	-.32	.13	-.25	.8	-.28	.22
	JP x Job tenure $F = .8.43^{**}$; $\Delta R^2 = .03$	-.03	.01	-2.9	.004	-.06	-.01
Intuition–Thinking (NT)	NT x Job type $F = .00$; $\Delta R^2 = .00$	.00	.09	.04	.97	-.16	.17
	NT x Job tenure $F = .01$; $\Delta R^2 = .00$	.00	.00	.11	.91	.00	.01
Intuition–Feeling (NF)	NF x Job type $F = .14$; $\Delta R^2 = .00$	-.04	.09	-.38	.71	-.22	.15
	NF x Job tenure $F = .30$; $\Delta R^2 = .00$	.00	.00	-.55	.56	-.01	.01
Sensing–Thinking (ST)	ST x Job type $F = .22$; $\Delta R^2 = .00$	-.04	.09	.47	.64	-.13	.21
	ST x Job tenure $F = .02$; $\Delta R^2 = .00$	.00	.00	.12	.9	-.01	.01
Sensing–Feeling (SF)	SF x Job type $F = .02$; $\Delta R^2 = .00$	-.01	.09	-.15	.89	-.19	.16
	SF x job tenure $F = 1.44$; $\Delta R^2 = .00$	.01	.01	1.2	.23	0	0.02

Notes: CI Confidence interval; LLCI Lower level confidence interval; ULCI Upper level confidence interval

Table 7.26 shows the following significant interactions in prediction job performance: EI and job type and JP and job tenure. Tables 7.27 and 7.28 illustrate the regression models.

Table 7.27

Moderated Regression Analysis Examining the Effects of Job Type and Extraversion–Introversion on Job Performance

Variable	β	SE	t	p	Bootstrapping (95% CI)	
					LLCI	ULCI
Constant	4.03	.05	82.41	.00	3.94	4.13
Extraversion–Introversion (A)	.14	.06	2.21	.03	.02	.27
Job Type (B)	.16	.06	2.65	.01	.04	.29
Interaction Term: A x B	-.23	.08	-2.8	.01	-.04	-.07
Model Information						
F^{**}	7.86					
ΔF^{**}	5					
R^2	.03					
ΔR^2	.03					
Cohen f^2	.39					

Notes: N = 299; *** $p \leq .001$; ** $p \leq .01$; * $p \leq .05$

$f^2 \geq .02$ (small practical effect size); $f^2 \geq .15$ (moderate practical effect size); $f^2 \geq .35$ (large practical effect size)

CI Confidence interval; LLCI Lower level confidence interval; ULCI Upper level confidence interval

Table 7.27 shows that the regression model was significant ($F = 7.86$; $p \leq .01$; $R^2 = .03$) (small practical effect size) and explained 3% (small practical effect) of variance in job performance. Figure 7.2 further illustrates the nature of the interaction ($f^2 = .39$; large practical effect).



Figure 7.2: Interaction diagram: Extraversion–Introversion x job type

Figure 7.2 shows that extraverted personality types in high emotional labour jobs tend to score significantly higher on job performance than extraverted personality types in low emotional labour jobs. Introverted personality types in low emotional labour jobs tend to score significantly higher than introverted types in high emotional labour jobs on job performance. For both extraverted and introverted personality types, their scores on job performance were conditional on whether they occupy high or low emotional jobs.

Interaction effects between the judging–perceiving MBTI dichotomy and job tenure were also assessed and the results are presented in Table 7.28.

Table 7.28

Moderated Regression Analysis Examining the Effects of Job Tenure and Judging–Perceiving on Job Performance

Variable	β	SE	t	p	Bootstrapping (95% CI)	
					LLCI	ULCI
Constant	4.14	.02	190.37	.00	4.10	4.18
Judging–Perceiving (A)	-.17	.08	-2.10	.04	-.32	-.01
Job Tenure (B)	.00	.00	-1.82	.07	-.01	.00
Interaction term: A x B	-.03	.01	-2.90	.004	-.06	-.01
F^{**}	8.43					
ΔF^{**}	3.41					
R^2	.05					
ΔR^2	.03					
Cohen f^2	.03					

Notes: N = 299; *** $p \leq .001$; ** $p \leq .01$; * $p \leq .05$

$f^2 \geq .02$ (small practical effect size); $f^2 \geq .15$ (moderate practical effect size); $f^2 \geq .35$ (large practical effect size)

CI Confidence interval; LLCI Lower level confidence interval; ULCI Upper level confidence interval

The regression model in Table 7.28 shows that the interaction between the judging–perceiving dichotomy and job tenure is significant ($F = 8.43$; $p \leq .01$; $R^2 = .05$; $\Delta R^2 = .03$; $f^2 = .03$) (small practical effect size) and explains 5% of variance in job performance (small practical effect). The interaction diagram presented in Figure 7.3 illustrates the nature of the interaction effects.

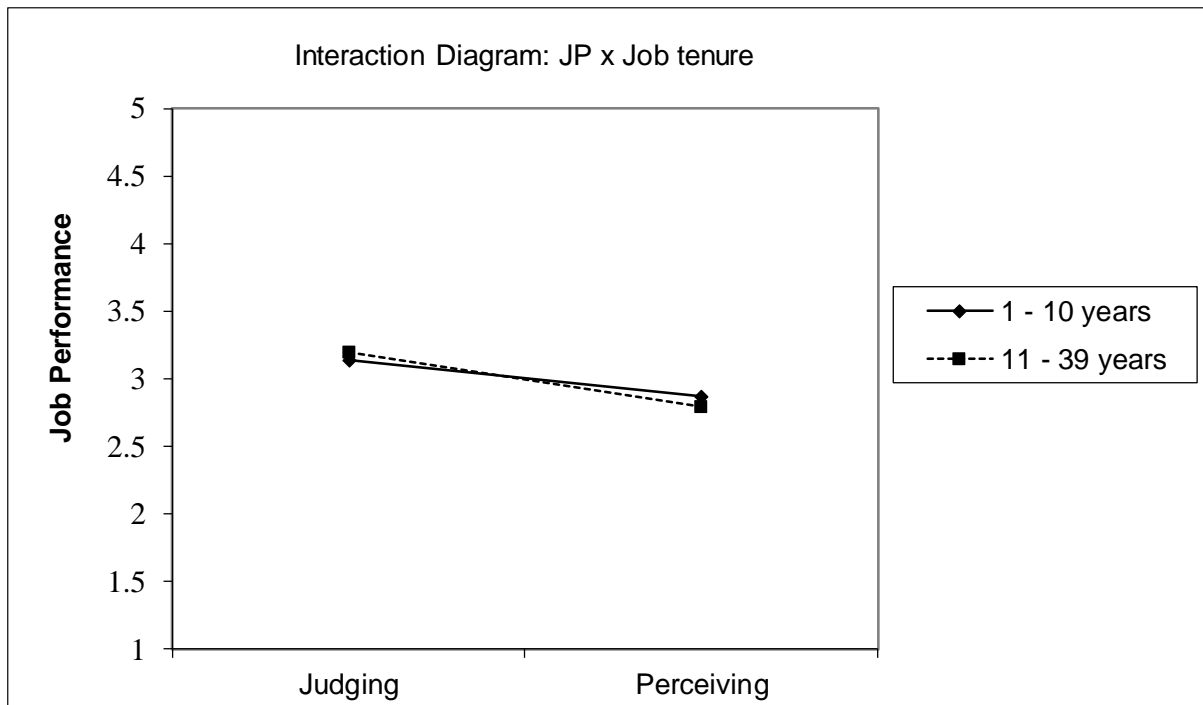


Figure 7.3: Interaction diagram: Judging–perceiving x Job tenure

As Figure 7.3 illustrates, the judging personality types in the 11 to 39 years job tenure group scored significantly higher (small practical effect) on job performance than judging personality types for people from job tenures lower than 11 years (1 to 10 years). The perceiving personality types in the 1 to 10 years job tenure group scored higher (small practical effect) on job performance than perceiving personality types with job tenures higher than 10 years (11 to 39 years). For both judging and perceiving personality types, their scores on job performance were conditional on their job tenure.

In summary and in terms of personality, only the extraversion-introversion and the judging personality types had interaction effects with some sociodemographic variables in predicting job performance. Thus, job type interacted with extraversion-introversion, and job tenure interacted with judging-perceiving in predicting job performance.

In conclusion, the results showed significant interaction (moderating) effects between personality and job tenure (judging-perceiving personality types) and job types (extraversion-introversion personality types) in predicting job performance. No interaction effects were observed in terms of cognitive intelligence, ability emotional intelligence, and trait emotional

intelligence, respectively and the socio demographic variables in predicting job performance. The implications of these findings will be discussed in Chapter 8.

Accordingly, the hierarchical moderated regression analysis provided partial evidence in support of H4.

H4: There is a significant interaction effect between the predictor variables (ability emotional intelligence, trait emotional intelligence, and personality, respectively) and the sociodemographic variables of age, gender, job tenure and job type in predicting job performance.

The next section outlines the results of the test of significant mean differences.

7.5.4 Tests for significant mean differences

This section reports the test for significant mean differences in order to test research hypothesis H5. The researcher stated hypothesis H5 as follows:

H5: Individuals from different age, gender, job tenure and job type groups differ significantly regarding their cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality, respective and job performance.

Having considered the tests of normality using the Shapiro-Wilk and Kolmogorov-Smirnov tests, only the GAMA did not satisfy the assumption of normality. The skewness and kurtosis values for either at least one of the overall or the subscales of the predictor and criterion measures did not satisfy the test of skewness and kurtosis to warrant the use of parametric statistics. Thus, it was necessary to use non-parametric test statistics for the tests for significant mean differences. Accordingly, the Wilcoxon signed-rank test using SAS Version 9.4 (SAS, 2013) was used as the test of significant mean differences for the following sociodemographic variables of age, gender, job tenure, and job type.

7.5.1.3 Tests for Significant Mean Differences for Predictor and Criterion Measures: Age

This section reports the tests for significant mean differences in the levels of the predictor variables by age. The results of these tests are displayed in Table 7.29.

Table 7.29

Tests for Significance Mean Differences for Predictor and Criterion Measures: Age

Variable	Source of difference (years)	N	Mean	SD	Z	p	Cohen d
GAMA	22 - 36	181	165.30	729.67	-3.79	.0001	.05
	37 - 61	118	126.53	729.67			
Matching	22 - 36	181	160.0	713.3	-2.55	.01	.04
	37 - 61	118	134.6	713.3			
Analogies	22 - 36	181	162.54	725.16	-3.12	.002	.04
	37 - 61	118	130.77	725.16			
Sequences	22 - 36	181	163.72	723.38	-3.43	.001	.05
	37 - 61	118	128.95	723.38			
Construction	22 - 36	181	157.82	711.82	-1.99	.05	.05
	37 - 61	118	138.01	711.82			
WEIS	22 - 36	181	143.24	728.13	-1.68	.09	N/A
	37 - 61	118	160.37	728.13			
Self emotional appraisal	22 - 36	181	152.49	712.95	-.63	.53	N/A
	37 - 61	118	146.18	712.95			
Other's motional appraisal	22 - 36	181	141.49	715.39	2.15	.03	.03
	37 - 61	118	163.05	715.39			
Use of emotion	22 - 36	181	142.21	711.54	1.99	.05	.03
	37 - 61	118	161.95	711.54			
Regulation of emotion	22 - 36	181	149.86	713.23	.03	.97	N/A
	37 - 61	118	150.21	713.23			
AES	22 - 36	181	152.20	730.07	-.55	.56	N/A
	37 - 61	118	146.62	730.07			
Perception of emotion	22 - 36	181	147.94	726.53	-.51	.61	N/A
	37 - 61	118	153.17	726.53			
Managing own emotions	22 - 36	181	154.22	726.28	-1.05	.29	N/A
	37 - 61	118	143.53	726.28			
Managing others' emotion	22 - 36	181	151.27	722.06	-.32	.75	N/A
	37 - 61	118	148.05	722.06			
Utilisation of emotion	22 - 36	181	149.82	723.27	.04	.97	N/A
	37 - 61	118	150.27	723.27			
Job Performance	22 - 36	181	161.27	729.43	-2.75	.005	.04
	37 - 61	118	132.72	729.43			
Task Performance	22 - 36	181	160.19	725.66	2.54	.01	.04
	37 - 61	118	134.37	725.66			
OCBI	22 - 36	181	157.76	725.83	-1.93	.05	.05
	37 - 61	118	138.10	725.83			
OCBO	22 - 36	181	155.50	719.97	-1.38	.17	N/A
	37 - 61	118	141.57	719.97			

For cognitive intelligence, the 22 to 36 years age group scored significantly higher than the 37 - 61 age group on both the GAMA overall score and all its four subscales: GAMA: $Z = -3.79$; $p \leq .001$; $d = .05$; very small effect size; Matching: $Z = -2.55$; $p \leq .01$; $d = .04$; very small effect size; Analogies: $Z = -3.12$; $p \leq .01$; $d = .04$; very small effect size; Sequences: $Z = -3.43$; $p \leq .01$; $d = .05$; very small effect size; and Construction $Z = -1.99$; $p \leq .05$; $d = .05$; very small effect size.

For ability emotional intelligence (WEIS), only the other's emotional appraisal and the use of emotion subscales produced significantly different age group scores. Regarding the other's emotional appraisal subscale, older people or the 37 to 61years age group scored significantly higher than the 22 to 36 years age group ($Z = 2.15$; $p \leq .05$; $d = .03$; very small effect size). Similarly, the 37 to 61years age group also scored significantly higher than the 22 to 36 years age group on the use of emotion subscale ($Z = 1.99$; $p \leq .05$; $d = .03$; very small effect size).

In terms of job performance, significant mean differences between the age groups were found only on the overall job performance scale, task performance and the OCBI. On the overall job performance scale, younger people or the 22 to 36 years age group scored significantly higher than the 37 to 61years age group ($Z = -2.75$; $p \leq .01$; $d = .04$; very small effect size). The trend was similar for task performance, where the 22 to 36 years age group scored significantly higher than the 37 to 61years age group ($Z = 2.54$; $p \leq .01$; $d = .04$; very small effect size). Furthermore, the 22 to 36 years age group scored significantly higher than the 37 to 61years age group on the OCBI ($Z = -1.93$; $p \leq .05$; $d = .05$; very small effect size).

No age group differences were found in trait emotional intelligence as measured by the AES.

7.5.1.4 Tests for Significance Mean Differences for Predictor and Criterion Measures: Gender

This section reports the tests for significant mean differences in the levels of the predictor variables by gender. The results of these tests are shown in Table 7.30.

Table 7.30

Tests for Significance Mean Differences for Predictor and Criterion Measures: Gender

Variable	Source of difference	N	Mean	SD	Z	p
GAMA	Male	183	149.18	727.45	.21	.84
	Female	116	151.30	727.45		
Matching	Male	183	146.7	711.1	.85	.39
	Female	186	155.2	711.1		
Analogies	Male	183	149.01	722.95	.25	.80
	Female	116	151.57	722.95		
Sequences	Male	183	151.00	721.00	-.25	.80
	Female	186	148.00	721.00		
Construction	Male	183	149.13	709.65	.22	.82
	Female	116	151.37	709.65		
WEIS	Male	183	152.73	725.91	-.69	.49
	Female	186	145.69	725.91		
Self emotional appraisal	Male	183	150.82	710.78	-.21	.83
	Female	116	148.71	710.78		
Other's motional appraisal	Male	183	155.46	713.21	-1.40	.16
	Female	186	141.39	713.21		
Use of emotion	Male	183	152.07	709.38	-.53	.59
	Female	116	146.74	709.38		
Regulation of emotion	Male	183	148.37	711.05	.42	.67
	Female	186	152.58	711.05		
AES	Male	183	149.01	727.84	.25	.80
	Female	116	151.57	727.84		
Perception of emotion	Male	183	146.99	724.32	.67	.45
	Female	186	154.74	724.32		
Managing own emotions	Male	183	149.10	724.07	.23	.82
	Female	116	151.41	724.07		
Managing others' emotion	Male	183	146.37	719.85	.93	.36
	Female	186	155.72	719.85		
Utilisation of emotion	Male	183	153.99	721.06	-1.01	.31
	Female	116	143.71	721.06		
Job Performance	Male	183	152.31	727.21	-.58	.56
	Female	186	146.36	727.21		
Task Performance	Male	183	149.30	723.45	.18	.86
	Female	116	151.10	723.45		
OCBI	Male	183	152.99	723.61	-.75	.45
	Female	186	145.29	723.61		
OCBO	Male	183	150.12	717.78	-.03	.56
	Female	116	149.81	717.78		

Table 7.30 shows that there were no significant gender differences in the mean scores of all of the independent (predictor) and dependent (criterion) variables. The Cohen *d* was, thus, not computed.

7.5.1.5 Tests for Significance Mean Differences for Predictor and Criterion Measures: Job tenure

This section reports the tests for significant mean differences in the levels of the predictor variables by job tenure. The results are presented in Table 7.31.

Table: 7.31

Tests for Significance Mean Differences for Predictor and Criterion Measures: Job Tenure

Variable	Source of difference	N	Mean	SD	Z	p	Cohen d
GAMA	1 - 10	148	163.21	746.39	2.62	.01	.04
	11 - 39	151	137.06	746.39			
Matching	1 - 10	148	160.0	729.6	2.02	.04	.03
	11 - 39	151	140.2	729.6			
Analogies	1 - 10	148	165.51	741.78	3.09	.002	.04
	11 - 39	151	134.80	741.78			
Sequences	1 - 10	148	159.68	739.96	1.94	.05	.03
	11 - 39	151	140.51	739.96			
Construction	1 - 10	148	148.80	728.13	-.24	.81	
	11 - 39	151	151.17	728.13			
WEIS	1 - 10	148	147.95	744.81	1.41	.68	
	11 - 39	151	152.01	744.81			
Self emotional appraisal	1 - 10	148	155.02	729.29	1.01	.31	
	11 - 39	151	145.08	729.29			
Other's motional appraisal	1 - 10	148	149.51	731.79	-.10	.92	
	11 - 39	151	150.48	731.79			
Use of emotion	1 - 10	148	143.99	727.85	-1.22	.22	
	11 - 39	151	155.89	727.85			
Regulation of emotion	1 - 10	148	150.11	729.57	.02	.98	
	11 - 39	151	149.89	729.57			
AES	1 - 10	148	152.59	746.80	.51	.60	
	11 - 39	151	147.46	746.80			
Perception of emotion	1 - 10	148	145.90	743.18	.81	.41	
	11 - 39	151	154.02	743.18			
Managing own emotions	1 - 10	148	156.79	742.92	1.35	.18	
	11 - 39	151	143.34	742.92			
Managing others' emotion	1 - 10	148	154.53	738.60	.90	.36	
	11 - 39	151	145.56	738.60			
Utilisation of emotion	1 - 10	148	149.26	739.84	-.15	.88	
	11 - 39	151	150.73	739.84			
Job Performance	1 - 10	148	167.80	746.15	3.53	.0001	.05
	11 - 39	151	132.55	746.15			
Task Performance	1 - 10	148	163.07	742.29	2.65	.01	.04
	11 - 39	151	137.19	742.29			
OCBI	1 - 10	148	166.62	742.46	3.31	.001	.05
	11 - 39	151	133.71	742.46			
OCBO	1 - 10	148	157.26	736.47	1.46	.14	
	11 - 39	151	142.89	736.47			

For cognitive intelligence, the 1 to 10 years job tenure group scored significantly higher than the 11 to 39 years job tenure group on both the GAMA overall score and the subscales: GAMA: $Z = -2.62$; $p \leq .01$; $d = .04$; very small effect size; Matching: $Z = 2.02$ $p \leq .05$; $d = .03$; very small effect size; Analogies: $Z = 3.09$; $p \leq .01$; $d = .04$ very small effect size; Sequences: $Z = 1.94$; $p \leq .05$; $d = .03$; very small effect size.

Regarding job performance, significant mean differences between the job tenure groups were observed for the overall job performance scale, task performance, and the OCBI. On the overall job performance scale, younger people or the 1 to 10 years job tenure group scored significantly higher than the 11 to 39 years job tenure group ($Z = 3.53$; $p \leq .001$; $d = .04$; very small effect size). The pattern was the same for task performance ($Z = 2.65$; $p \leq .01$; $d = .04$; very small effect size) and on the OCBI ($Z = 3.31$; $p \leq .001$; $d = .05$; very small effect size), where the 1 to 10 years job tenure group scored significantly higher than the 11 to 39 years and job tenure group.

No age group differences in ability emotional intelligence and trait emotional intelligence were found.

7.5.1.6 Tests for Significance Mean Differences for Predictor and Criterion Measures: Job Type

This section reports the tests for significant mean differences in the levels of the predictor variables by job type. The results are displayed in Table 7.32.

Table: 7.32

Tests for Significance Mean Differences for Predictor and Criterion Measures: Job Type

Variable	Source of difference	N	Mean	SD	Z	P	Cohen <i>d</i>
GAMA	High emotional labour	173	148.61	737.15	.33	.74	
	Low emotional labour	126	151.91	737.15			
Matching	High emotional labour	173	148.5	720.6	.36	.72	
	Low emotional labour	126	152.1	720.6			
Analogies	High emotional labour	173	147.16	732.59	.67	.50	
	Low emotional labour	126	153.90	732.59			
Sequences	High emotional labour	173	149.87	730.80	.03	.98	
	Low emotional labour	126	150.17	730.80			
Construction	High emotional labour	173	152.30	719.12	-.55	.58	
	Low emotional labour	126	146.84	719.12			
WEIS	High emotional labour	173	159.15	735.59	-2.15	.03	.02
	Low emotional labour	126	137.43	735.59			
Self emotional appraisal	High emotional labour	173	155.62	720.26	-1.35	.18	
	Low emotional labour	126	142.29	720.26			
Other's motional appraisal	High emotional labour	173	157.84	722.73	1.87	.06	
	Low emotional labour	126	139.24	722.73			
Use of emotion	High emotional labour	173	153.85	718.84	-.93	.36	
	Low emotional labour	126	144.72	718.84			
Regulation of emotion	High emotional labour	173	157.54	720.54	-1.81	.07	
	Low emotional labour	126	139.64	720.54			
AES	High emotional labour	173	149.92	737.55	.02	.99	
	Low emotional labour	126	150.10	737.55			
Perception of emotion	High emotional labour	173	148.71	733.98	.30	.76	
	Low emotional labour	126	151.77	733.98			
Managing own emotions	High emotional labour	173	147.99	733.72	.47	.64	
	Low emotional labour	126	152.76	733.72			
Managing others' emotion	High emotional labour	173	160.25	729.45	-2.43	.02	.03
	Low emotional labour	126	135.92	729.45			
Utilisation of emotion	High emotional labour	173	143.51	730.68	1.53	.12	
	Low emotional labour	126	158.91	730.68			
Job Performance	High emotional labour	173	153.64	736.91	-.85	.39	
	Low emotional labour	126	145.00	736.91			
Task Performance	High emotional labour	173	154.33	733.10	-1.02	.31	
	Low emotional labour	126	144.06	733.10			
OCBI	High emotional labour	173	152.22	733.26	-.52	.60	
	Low emotional labour	126	146.95	733.26			
OCBO	High emotional labour	173	154.47	727.35	-1.06	.29	
	Low emotional labour	126	143.86	727.35			

In terms of job type, the results show that there were significant mean differences only in ability emotional intelligence (WEIS) and trait emotional intelligence (AES). For ability emotional intelligence, people occupying high emotional labour jobs scored significantly higher than those occupying low emotional labour jobs, but only on the overall WEIS scale ($Z = -2.51$; $p \leq .05$; $d = .02$; very small effect size). Regarding trait emotional intelligence, significant differences were found only on the managing others' emotions subscale of the AES ($Z = -2.43$; $p \leq .05$; $d = .03$; very small effect size), where again people occupying high emotional labour jobs scored significantly higher than those occupying low emotional labour jobs.

Results revealed no significant job type differences in the mean scores of cognitive intelligence and job performance.

The presentation of the results of the tests for significance mean differences by job tenure concludes the section on testing for significant mean differences. The following section summarises the tests of significant mean differences and draws conclusions from them, noting that all significant mean differences reported had very small effect sizes.

7.5.1.7 Conclusions on tests for significance mean differences

This section draws conclusions from the tests for significant mean differences.

Overall, differences were observed in terms of age, job tenure and job type groups.

Age

Overall, it can be concluded that younger people (22 - 36 years) tend to score higher than their older counterparts (37 – 61 years) on cognitive intelligence and job performance while older people (37 – 61 years) tend to score higher than the younger group of participants (22 - 36 years) on ability emotional intelligence.

Job tenure

Participants with job tenures of 10 years and less (1 – 10 years) generally scored higher than those with more than ten years tenure (11 – 39 years) on cognitive intelligence and job performance (task and OCBI).

Job type

Overall, participants in high emotional labour jobs tend to score higher than those in low emotional labour jobs on ability and trait emotional intelligence (managing own emotions).

Accordingly, the test of significant mean differences partly provided evidence in support of hypothesis 5.

H5: Individuals from different age, gender, job tenure and job type groups differ significantly regarding their cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality, respective and job performance.

7.6 CHAPTER SUMMARY

This chapter presented the research results. The preliminary statistical analysis involved testing for the common method variance, ascertaining construct validity and performing reliability analysis for the measurement scales. The validity of the SEM measurement model was also assessed. In terms of descriptive statistics, tests of assumption (kurtosis and skewness) were computed and frequency distributions were produced, to pave way for correlational and inferential statically analyses. Thus, the bivariate correlations of independent, dependent and sociodemographic variables were also reported. The chapter concluded by reporting the inferential statistics, which included SEM, stepwise regression analysis, hierarchical moderated regression analysis, and tests for significant mean differences.

Chapter 8 provides an integration and discussions of the research results, draws a number of conclusions and concludes by making recommendations in light of the findings of the study.

CHAPTER 8: DISCUSSION, CONCLUSIONS, LIMITATIONS, AND RECOMMENDATIONS

In this chapter, the research findings will be integrated and discussed. The empirically manifested personnel selection model will be proposed. The chapter will also draw conclusions from the research in terms of the aims of both the literature review and the empirical study. The limitations of the research findings will be highlighted and the recommendations for both the field of industrial psychology and for future research will be made. Finally, the study will be evaluated.

8.1 INTEGRATION AND DISCUSSION

This section integrates the research results and proposes the empirically manifested personnel selection model.

8.1.1 Sociodemographic profile of the sample

The research results showed that employees in the 22 to 36 years age group (60.54%) constituted the majority of the respondents. In the event that there are significant age group differences in the levels of the personnel selection measures (as was the case), this may lead to potential age-based discrimination that need to be attended to by industrial psychologists (Klein et al., 2015). As will be discussed later in this chapter, the age group differences in cognitive intelligence, ability emotional intelligence, and job performance have implications for personnel selection practices.

The other information presented on the sociodemographic profiles of the research participants indicates that there were more male (61.20%) than female (38.8%) respondents. Females constitute 52% of Zimbabwe's population (ZIMSTAT, 2015). Against this background, researchers should consider increasing the number of female participants in occupational research so that conclusions can be drawn from more representative samples.

In terms of the occupational levels (grade), a majority of the respondents occupied grade C Upper of the Paterson job grading system (89%) compared to the 11% for the D Lower grade. While the research targeted supervisory, professionally qualified and experienced specialists, as well as middle management employees as research participants, only supervisory and professionally qualified and experienced specialists participated. This indicates that since the respondents were promised (and given) developmental reports, professionals occupying lower grades may tend to be motivated to learn more about their behaviour (Alreck & Settle,

2004) than their counterparts occupying higher grades (middle managers). Future research should include a wider spectrum of job levels to arrive at more informed conclusions.

Regarding job tenure, there was almost an equal number of respondents between the 1 to 10 years job tenure group (48.5%) and the 11 to 39 years job tenure group (50.5%). For the purposes of personnel selection, organisations may actually use job tenure as a criteria or measure of job performance, especially if job tenure significantly predicts job performance as seen in the present study. Prior research suggests that job tenure has a weak to moderate relationship with job performance (Avolio, et al., 1990; Hunter & Hunter, 1984). However, the present study found the relationship to be significant.

In terms of job type, there were more respondents in the high emotional labour group (57.9%) than in the low emotional labour group (42.1%). This indicates that, as manifested in the sample of respondents from the Zimbabwean organisational environment, there may be more people in the low emotional labour category among employees. In terms of personnel selection practices, if people from the two job types exhibit significantly different levels of the predictor variable constructs, industrial psychologist may need to norm the scores from personnel selection tests differentially. Differential norming is expected to assist in avoiding adverse impact and biases against job candidates from certain job types.

For the purposes of the discussion and for making recommendations, high emotional labour jobs included jobs in customer service, marketing and sales, human resources and training, medical and health services, advisory and advocacy, investigative, and legal and regulatory. The jobs falling under the professions of finance and accounting, engineering and information technology, research and statistics, and biological and food sciences were classified as low emotional labour jobs. The professional categorisation of jobs is important in guiding industrial psychologists in terms of the recommendations involving the relationships between job types and job performance.

8.1.2 Descriptive statistics: interpretation of the results

Descriptive statistics pertaining to the predictor and criterion variables are discussed in this section.

8.1.2.1 Cognitive intelligence: General Ability Measure for Adults (GAMA).

The mean score for cognitive intelligence as measured by the GAMA (Naglieri & Bardos, 1997) was 32.26 out of possible score of 66, indicating that the respondents' performance was generally below the average. The scores were generally lower than the normative sample used to develop the GAMA. The GAMA was developed in the United States of America (Naglieri & Bardos, 1997), meaning that the abstract diagrams used as test items might have been related to what Americans are used to. In line with the social-cognitive learning paradigm, cognitive intelligence is linked to the ability to adapt to one's environment (Bandura, 1977; Mischel, 1999b). The lower performance on the GAMA could therefore have resulted from the respondents' unfamiliarity with the test items, which might not have been relevant to the local (Zimbabwean) environment.

8.1.2.2 Ability emotional intelligence: Wong's Emotional Intelligence Scale (WEIS)

The mean score for the WEIS was 28.33 out of a possible total score of 40, indicating that the respondents scored generally high on ability emotional intelligence. When they developed the WEIS, Wong et al. (2004) did not provide normative information. Rather, Wong et al. (2004) advise that higher scores are associated with higher ability emotional intelligence, while lower scores are associated with lower ability emotional intelligence. According to Cote and Miners (2006), emotional intelligence may lead to good performance because of the improved management of relationships and emotions at work. It important to note that the internal consistency reliabilities obtained for the WEIS (especially its subscales) were generally low, implying that the results should be treated with caution. The low reliabilities could be a result of cultural differences between the Zimbabwean respondents and the Chinese scale development sample.

8.1.2.3 Trait emotional intelligence: Assessing Emotions Scale (AES)

Responses to the AES were recorded on a scale ranging from "1" (strongly disagree) to "5" (strongly agree). The mean score for trait emotional intelligence was 4.05 indicating that the respondents had above-average trait emotional intelligence. According to Schutte et al. (2009), high emotional intelligence may lead to effective job performance, especially for high emotional labour jobs.

8.1.2.4 Job performance: Williams and Anderson's Job Performance Scale

Responses to the job performance scale were recorded on a scale ranging from "1" (strongly disagree) to "5" (strongly agree). Job performance had a mean score of 4.14. The mean score

shows that the respondents had above-average job performance, as indicated by supervisory ratings. This is in line with the humanistic paradigm which holds that individuals are positive and are motivated to perform in order to self-actualise (Maslow, 1970).

8.1.2.5 Personality types: the Myers-Briggs Type Indicator (MBTI)

Responses from the MBTI were dichotomous. Thus frequencies, rather than mean scores, were used to report and interpret the results.

In the Zimbabwean organisational environment, it would seem that the five most prevalent personality types are ISTJ (52; 17%), followed by ENTJ (49; 16%), INTJ (43; 14%), ESTJ (39; 13%), and INFJ (22; 7%). The least common personality types are ESFP (1; .3%), ENFJ (1; .3%), ENTP (2; .7%), ESTP (3; 1.00%) and ISTP (4; 1.3%). The fact that the ISTJ was the commonest personality type for the present study is consistent with prior research (Coetzee, 2005; Daisley, 2011; Sample, 2017). Although the research has shown different orders of the distribution of personality types between the continents, the ISTJ personality type has been found to be the most common personality type (Coetzee, 2005; Daisley, 2011; Sample, 2017). This information is important for the developmental interventions for the ISTJ and other common personality types so that they become suited to a wider range of jobs.

Kirby and Myers (2000) describe people of the ISTJ type as introverted sensing types, with thinking and judging. They are organised, serious and value loyalty (Kirby & Myers, 2000). The ISTJ types tend to earn their success through responsibility, dependability and perseverance regardless of distractions. This presents practical implications for industrial psychologists, since the ISTJ personality type might not suit all jobs and professions. From their nature, one could conclude that the ISTJ personality types may be suited for low emotional labour jobs. The present study revealed that extraverted personality types in high emotional labour jobs have a higher chance of performing at significantly higher levels on the jobs than the extraverted types in low emotional labour jobs. Conversely, introverted personality types in low emotional labour jobs are also likely to score significantly higher than introverted types in high emotional labour jobs on job performance. Against this background, if organisations intend to fill vacancies for low emotional labour jobs, they may need to invest less in developing the ISTJ candidates post selection. On the other hand, organisations should prepare to put in place mechanisms to develop the ISTJ personality types if the target positions require high emotional labour, where the extraverted personality types may be best suited

In summary, this section discussed the descriptive statistics applied for the study. In the next section, the research aims and hypotheses are discussed.

8.1.3 Empirical research aim 1: interpretation of the correlation results

Research aim 1 was stated as follows:

Research aim 1: To empirically investigate the statistical relationship between cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality, and job performance, as manifested in a sample of respondents in the Zimbabwean organisational environment.

This research aim relates to H1.

8.1.3.1 The relationship between cognitive intelligence and job performance

Cognitive intelligence was measured using the GAMA (Naglieri & Bardos, 1997). The GAMA has four subscales, namely, matching, analogies, sequences, and construction. Job performance was measured using the William and Anderson Job Performance Scale (William & Anderson, 1991). The job performance scale has three subscales, namely, task performance, organisational citizenship behaviour directed towards the individual (OCBI), and organisational citizenship behaviour directed towards the organisation (OCBO).

The results showed that cognitive intelligence was significantly positively correlated with the overall job performance scale and its three subscales. These results are consistent with extensive meta-analyses and other research conducted in the past decade (Davison & Kemp, 2011; Joseph & Newman, 2010; O'Boyle et al., 2011). The highest relationships were found between task performance and the overall GAMA scale and each of the subscales. These relationships suggest that cognitive intelligence is better at measuring task performance than contextual performance (OCBO and OCBI). In terms of contextual performance, cognitive intelligence was better correlated with OCBI than OCBO. This indicates that employees with high cognitive intelligence are likely to improve organisational performance by assisting fellow employees to meet their own performance targets (OCBI) as opposed to assisting the organisation (OCBO). Organisations that use cognitive intelligence measures for personnel selection should thus put more effort into assisting their employees to exhibit more OCBO. All the four subscales of cognitive intelligence were significantly correlated with overall job performance, indicating the pervasive nature of the relationship between cognitive intelligence

and job performance (Joseph & Newman, 2010; O'Boyle et al., 2011; Schmidt & Hunter, 2004).

The results on the relationship between cognitive intelligence and job performance provided evidence in support of hypothesis H1.

8.1.3.2 The relationship between ability emotional intelligence and job performance

Ability emotional intelligence was measured using the WEIS (Wong et al., 2004). The WEIS has four subscales namely, self emotional appraisal, other's emotional appraisal, regulation of emotion, and use of emotion. The results revealed no significant relationships between overall job performance and the WEIS scale. These results are contrary to the findings of some studies (Cote & Miners, 2006; Greenidge et al., 2014; Joseph & Newman, 2010; Mayer et al., 2002). Only the WEIS subscale of regulation of emotion had a significant positive correlation with job performance and OCBI, but better correlated with OCBI than overall job performance. Thus, for ability emotional intelligence, regulation of emotion can be the most important factor of emotional intelligence in relation to job performance and hence it was positively correlated with job performance through its positive relationship with OCBI. The results of the present study imply that organisations should focus primarily on job candidates' levels of regulation of emotion since regulation of emotion has a better relationship with job performance. However, the findings should be treated with caution due to the low internal consistency reliabilities obtained for the WEIS.

In terms of the research hypothesis, one may argue that the results of the relationship between ability emotional intelligence and job performance supported hypothesis H1, since one of its subscales was significantly positively correlated with job performance.

8.1.3.3 The relationship between trait emotional intelligence and job performance

Trait emotional intelligence was measured using the AES (Schutte et al., 1998). The AES has four subscales (perception of emotion, managing own emotions, managing others' emotions, and utilisation of emotion). No significant relationships were found between each of the managing own emotions, managing others' emotions, and utilisation of emotion subscales and job performance. However, the overall trait emotional intelligence was positively correlated with task performance, which supports evidence provided by Hui-Hua and Schutte (2015). Perception of emotion was positively correlated with both overall job performance and task performance, but better correlated with task performance than with overall job

performance. This suggests that trait emotional intelligence may be positively correlated with task performance through perception of emotion. With respect to the use of trait emotional intelligence in occupational settings, industrial psychologists and human resources practitioners should select people with high perception of emotion, since this is positively correlated with job performance. The fact that some aspects of trait emotional intelligence were related to some aspects of the job performance criteria is consistent with prior research where a weak to moderate relationship between trait emotional intelligence and job performance was observed (Schutte, Schuettpeitz, & Malouff, 2001; Wu, 2011). However, owing to the fact that they are self-reports, measures of trait emotional intelligence may suffer the negative effects of impression management, which may distort their true relationship with job performance.

From the foregoing paragraph, the research results provided evidence in support of hypothesis H1, since the perception of emotion subscale was significantly correlated with both overall job performance and task performance.

8.1.3.4 The relationship between personality and job performance

Personality was measured using the MBTI Form M (Myers et al., 1998). The MBTI Form M measures personality along the eight dichotomies (extraversion–introversion, sensing–intuition, thinking–feeling, judging–perceiving, intuition–thinking, intuition–feeling, sensing–thinking and sensing–feeling). The dummy codes for the dichotomies are provided in Table 7.14 to guide the interpretation of the results. Only the sensing–feeling and the sensing–thinking dichotomies had significant correlations with job performance. The sensing–thinking dichotomy had a positive correlation with the overall job performance scale, suggesting that the thinking personality type is likely to lead to better job performance than the sensing personality type. The sensing–feeling personality type had a negative correlation with OCBO, indicating that the sensing personality type may inhibit job performance through low OCBO while the feeling personality type may augment job performance through its contribution to OCBO.

Research on the relationship between personality types and job performance has generally been scant, since personality types have been mainly tested in personnel development and group functioning areas (Gilal et al., 2016; Leary et al., 2009). One may conclude that the negative relationship between sensing–feeling and OCBO reflects that the way people make decisions based on their personal consideration, using concrete rather than abstract

information (sensing–feeling), may actually be negatively related to their propensity to enhance job performance through assisting their organisations (OCBO).

In terms of the relationship between personality and job performance, the research partially provided evidence in support of hypothesis H1.

8.1.4 Empirical research aims 2 and 3: interpretation of the structural equation modelling and path analysis

The discussion of research aims 2 and 3 will be combined since the results were obtained from the same statistical procedure.

Research aims 2 and 3 were stated as follows:

Research aim 2: To determine whether the predictor variables of cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality significantly predict job performance.

Research aim 3: Based on the statistical relationship between cognitive intelligence, ability emotional intelligence, trait emotional intelligence, personality, and job performance, to determine the elements of the empirically manifested personnel selection model, and how the proposed empirical model compares with the theoretically hypothesised model.

These research aims related to H2 and H3.

As part of efforts to achieve research aims 2 and 3, four competing SEM models were run. The SEMs were then subjected to the chi-square comparison tests in order to choose the best prediction model for the study. The four SEMs are presented in Tables 7.16, 7.17, 7.18, and 7.19 (Chapter 7). The Multivariate SEM showed that all the four models had good fit statistics. However, the researcher chose SEM Model 1 (Table 7.16), consisting of cognitive intelligence, ability emotional intelligence, trait emotional intelligence and personality (independent/predictor variables) and job performance (dependent/criterion variable) as the SEM prediction model for the study. The SEM prediction Model 1 had better utility compared to the other three competing models. This is because dropping any one of the predictor variables in Model 1 led to a reduction in the predictive power of the variables in the model.

To answer research question 3, the criteria for a personnel selection model discussed in Chapter 2 must be restated. It will then become possible to compare the criteria for a personnel selection model with the empirically manifested personnel selection model. The criteria for a personnel selection method include the following:

Firstly, each measure of personnel selection should be able to significantly predict job performance (Gardner & Qualter, 2010; Hattrup, 2012; Joseph & Newman, 2010; O'Boyle et al., 2011). Secondly, the component measures in the personnel selection model should be theoretically distinct from each other (Joseph & Newman, 2010). Thirdly, from an empirical point of view, the model should psychometrically show good model fit in terms of the fit indices. The fit indices demonstrate good construct validity (chi-square value, RMSEA, SRMR, and CFI). The criteria for a personnel selection model in relation to the empirically manifested personnel selection model are discussed below.

8.1.4.1 Model fit

From a psychometric point of view, the SEM performed on the data showed good model fit for both the SEM measurement and prediction models indicating good construct and predictive validity. This satisfies one of the criteria for a personnel selection model.

8.1.4.2 Relationship between predictor variables

It was vital to determine the relationships between the predictor variables in order to ascertain whether the variables were empirically distinct from each other from a construct point of view. The bivariate correlations between the predictor variables ranged from $r = -.31$; $p \leq .001$; moderate practical effect to $r = .18$; $p \leq .05$; small practical effect. The weak to moderate correlations indicate the absence of multicollinearity, which occurs when $r \geq .80$ (Cohen et al., 2013). The absence of multicollinearity demonstrates that the predictor variables were theoretically distinct from each other, satisfying one of the criteria for a personnel selection model (Hattrup, 2012; Joseph & Newman, 2010).

8.1.4.3 Predictive power of variables in the model

Cognitive intelligence had the highest predictive validity because it explained 65% of the variance in job performance (large practical effect). Ability emotional intelligence was the second best predictor of job performance, accounting for 41% of the variance in job performance (large practical effect). Personality was the third best predictor, explaining 5% of

the variance in job performance (small practical effect). Trait emotional intelligence failed to account for any variance in job performance. The failure of trait emotional intelligence to explain any variance in job performance suggests that it may be redundant in the personnel selection model. The foregoing statement should be viewed in the context that trait emotional intelligence has been found to have a low to moderate relationship with job performance (Schutte et al., 2001; Wu, 2011). However, in terms of the bivariate correlations, the perception of emotion subscale was positively correlated with task performance and overall job performance. Organisations may therefore benefit if they still include trait emotional intelligence in the personnel selection model. This is because trait emotional intelligence may be significantly correlated with some job performance outcomes, especially for people occupying high emotional labour jobs, as shown by this research.

The results of the SEM indicate that cognitive intelligence was the best predictor of job performance in line with earlier research (Schmidt & Hunter, 2004) and extensive meta-analyses (Joseph & Newman, 2010, O'Boyle et al., 2011). This supports the assertion that cognitive intelligence is the single best predictor of job performance for most if not all jobs.

Ability emotional intelligence accounted for 41% of the variance in job performance (large practical effect), consistent with research conducted by Greenidge et al. (2014) and Sony and Mekoth (2016). However, ability emotional intelligence failed to account for any variance in job performance in the other two competing SEM models 3 and 4 (Tables 7.18 and 7.19, respectively), where cognitive intelligence was absent. In addition, ability emotional intelligence did not explain the variance in job performance beyond cognitive intelligence. The preceding insight indicates that ability emotional intelligence may therefore not be able to compensate for cognitive intelligence in predicting job performance for people with low cognitive intelligence, contrary to the assertion by Cote and Miners (2006).

It is also insightful to note that when only ability and trait emotional intelligence were paired, they were not significant predictors of job performance. Thus, on their own, the two types of emotional intelligence may not significantly predict job performance. The insight in the preceding sentence does not suggest that ability emotional intelligence is redundant in the personnel selection model. Rather, when ability emotional intelligence is combined with cognitive intelligence, it may assist organisations in tapping other psychological constructs (different from cognitive intelligence) that are important in predicting job performance (41%; large practical effect). Consistent with prior research, ability emotional intelligence becomes more important in predicting job performance for job candidates being selected for high emotional labour jobs (Joseph & Newman, 2010; O'Boyle et al., 2011).

In terms of the predictive power of personality, the results showed small practical effect. However, despite the small practical effect, personality consistently predicted job performance. For example, where personality was paired with only ability and trait emotional intelligence, it was still a significant predictor of job performance, while the two emotional intelligences were not. The low practical effect of personality corroborates prior research in which personality was not a strong predictor, but rather useful for personnel development (Leary et al, 2009; Sample, 2017; Varvel et al. 2004). The present research showed that the MBTI has good psychometric properties in terms of reliability, construct validity, and predictive validity (small practical effect). Thus, the MBTI should still be used in identifying other occupational outcomes at the personnel selection stage. Hence, in addition to personnel development, the MBTI can also be used to assess team compatibility, communication, decision making style, and problem solving style (Prince, 2015; Sample, 2017; Varvel et al. 2004). These occupational outcomes are better identified at the personnel selection stage to ensure the best fit between the job candidates and job positions. Organisations may then reduce or save on the investment in personnel development, which might not be achieved if the relevant occupational outcomes are only discovered post selection.

In terms of the predictive power of the personnel selection measures, the central hypothesis assumed that the predictive power of the variables was arranged from the best to the least predictor as follows:

Cognitive intelligence, ability emotional intelligence, trait emotional intelligence, personality

Instead, the empirically manifested personnel selection model provided evidence of the predictive power of the variables from the best to the least predictive power as follows:

Cognitive intelligence, ability emotional intelligence, personality, trait emotional intelligence

In conclusion, not all the predictor variables in the empirically manifested personnel selection model significantly predicted job performance. Regarding model fit, the empirically manifested personnel selection model showed good fit with the data in terms of the fit indices, also satisfying one of the criteria for a personnel selection model. Another criterion for the personnel selection model was that the predictor variables should be theoretically distinct from each other. The research results satisfied the foregoing assumption owing to the good

measurement model validity and the absence of multicollinearity. The assumption of the central hypothesis about the order of the predictive power of the predictor variables and the assumption that ability emotional intelligence can compensate for cognitive intelligence in predicting job performance were, however, not met. In terms of fairness and bias, the research results did not test for the structural equivalence of the scales on the Zimbabwean sample, and this is a recommendation for future research.

Against the background of the discussion on research hypotheses 2 and 3, the research partially provided supportive evidence for research hypotheses 2 and 3.

8.1.5 Empirical research aim 4: interpretation of hierarchical moderated regression analysis

Research aim 4 was stated as follows:

Research aim 4: To determine whether there are interaction (moderating) effects between the sociodemographic variables (age, gender, job tenure, and job type) and cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality in predicting job performance.

This research aim relates to H4.

The research results indicate that there were significant interaction (moderating) effects between personality and job tenure (judging-perceiving personality types) and job types (extraversion-introversion personality types) in predicting job performance. No interaction effects were observed in terms of cognitive intelligence, ability emotional intelligence, and trait emotional intelligence, respectively and the sociodemographic variables in predicting job performance.

The next section discusses the interaction effects between extraversion–introversion and job type in predicting job performance.

8.1.5.1 Interpretation of the interaction effects of extraversion–introversion and job type in predicting job performance

The results showed that for both the extraverted and introverted personality types, their scores on job performance were conditional on whether they occupied high or low emotional jobs.

The extraverted personality types in high emotional labour jobs tend to score significantly higher on job performance than extraverted types in low emotional labour jobs. On the other hand, the introverted personality types in low emotional labour jobs tend to score significantly higher on job performance than the introverted types in high emotional labour jobs.

According to Kirby and Myers (2000), extraverted people are sociable and expressive and tend to focus on their outer world of people and activity. They direct their energy and attention outwards and receive energy from interacting with others. Talking to other people and resolving their problems through discussion is the main characteristic of high emotional labour jobs (Lee et al. 2016; Miller, 2015; Pavitra & Anju, 2016; Wharton, 2009). Against this background, the extraverted personality types may be best suited for high emotional jobs. It might therefore not be surprising for extraverted people in high emotional labour jobs scored significantly higher on job performance than introverted people in high emotional labour jobs. Introverted people tend to focus on their inner world of ideas, directing energy and attention inwards and receiving energy from reflecting on their thoughts (Kirby & Myers, 2000). Kirby and Myers (2000) add that introverted people are also likely to be private, preferring to communicate in writing as opposed to face-to-face interactions. Thus, by their nature, introverted people may be best suited for low emotional labour jobs. This explains why introverted people in low emotional labour jobs scored significantly higher on job performance than the introverted people in high emotional labour jobs. These interactions have implications for the field of industrial and organisational psychology and will be discussed in the conclusions and recommendations sections.

The researcher also assessed the interaction effects between judging–perceiving and job tenure in predicting job performance. The regression model was significant, albeit with small practical effect size and the interaction effect is discussed in the next section.

8.1.5.2 Interpretation of the interaction effects of judging–perceiving and job tenure in predicting job performance

The research revealed that the judging personality types in the 11 to 39 years job tenure group scored significantly higher on job performance (small practical effect) than the judging personality types for people from job tenures lower than 11 years (1 to 10 years). The perceiving personality types in the 1 to 10 years job tenure group scored significantly higher (small practical effect) than the perceiving types with job tenures higher than 10 years (11 to 39 years) on job performance. For both the judging and the perceiving personality types, their scores on job performance were conditional on their job tenure.

The results on the interaction effects need to be interpreted in line with the personality types theory. According to Kirby and Myers (2000), judging people tend to be organised, structured and decisive. Judging people prefer things that are scheduled and usually stick to their plan. On the other hand, the perceiving personality types tend to be flexible, spontaneous, and casual in approach, preferring to understand life than controlling it (Kirby & Myers, 2000). As discussed in Chapter 4, research on the relationship between job tenure and job performance is scant. However, a study by McCaulley (2000) seems to suggest that some personality types may be positively correlated with job experience (job tenure).

A plausible explanation for the nature of the interaction might be that people with higher job tenures learn to be organised because of more years of work experience. More years of work experience come with personnel development interventions that seek to enhance personal effectiveness and job performance. Thus, people with higher job tenures may therefore develop the art of organising their work, which leads to better job performance through personal effectiveness, resulting from good organisation (the judging personality type). Conversely, people from lower job tenures may have limited exposure simply owing to the limited work experience. As a result, they may have lower job performance even if they have the same personality type (judging) with their counterparts in the higher job tenure category. Another plausible explanation may be that supervisory performance ratings may punish people from higher job tenures with perceiving personality types since they are generally expected to have mastered the art of organising because of having more years of job experience. On the other hand, the same supervisory performance ratings may favour people from lower job tenures since they are expected to have the perceiving personality type anyway, because of limited job experience.

In conclusion of the discussion of the tests of interaction effects, it may therefore be stated that the present research partially provided evidence in support of hypothesis H4.

8.1.6 Empirical research aim 5: interpretation of tests for significant mean differences

Research aim 5 was stated as follows:

Research aim 5: To empirically investigate whether individuals from different ages, genders, job tenure, and job types differ with regard to their cognitive intelligence, ability emotional intelligence, and trait emotional intelligence, and levels of job performance.

Tests of significant mean differences were not done for personality because of the dichotomous nature of the MBTI subscales.

Research aim 5 relates to H5.

Significant sociodemographic mean differences were observed only on age, job tenure, and job type groups and are discussed below.

Age

The results revealed that younger people (22 to 36 years) scored significantly higher than their older counterparts (37 to 61 years) on cognitive intelligence and job performance while older people (37 to 61 years) scored significantly higher than the younger group of participants on ability emotional intelligence. While prior studies found no significant age group differences in cognitive intelligence (Brough et al., 2011; Rabbitt et al., 2003), recent studies confirm significant age group differences in cognitive intelligence (Klein et al., 2015). Klein et al. (2015) found younger people to score significant higher than older people on cognitive intelligence, a difference that industrial psychologists should consider in personnel selection contexts. In terms of ability emotional intelligence, prior studies found no significant age group differences (Cote & Miners, 2006; Goldenberg et al., 2006; Mikolajczak et al., 2007). This discourse requires future research to specifically focus on structural equivalence of the scales (ability emotional intelligence) to arrive at more conclusive results. Regarding job performance, the age group differences are not consistent with prior research, where a non-linear relationship with job performance has been found (Ali & Davies, 2003; Czaja & Sharit, 1998; Kashif et al., 2011). Giniger et al. (1983) found that older employees outperformed younger ones in occupations or jobs that required speed and skills. Kashif et al (2011) found that age was negatively correlated with OCB. In addition to the preceding statement, the evidence provided in this paragraph seems to suggest that the relationship between age and job performance appears to be non-linear and inconclusive and requires further research.

Job tenure

Participants with less than 11 years of job tenure (1 to 10 years) scored significantly higher than those with more than 10 years of job tenure (11 to 39 years) on cognitive intelligence and job performance (task performance and OCBI). The job tenure differences in cognitive intelligence and job performance seem to be inconsistent with prior research (Cote and Miner,

2006, Joseph & Newman, 2010; Schmidt & Hunter (2004) and require further research on the structural equivalents of the scales.

Job type

Overall, participants in high emotional labour jobs scored significantly higher than those in low emotional labour jobs on ability and trait emotional intelligence (managing own emotions). These results are consistent with prior research where differences in emotional intelligence for people occupying high and low emotional labour jobs have been observed (Joseph & Newman, 2010; Lee et al. 2016; Miller, 2015; O'Boyle et al., 2011; Pavitra & Anju, 2016; Wong & Law, 2002).

In conclusion, the research partially provided evidence in support of hypothesis H5.

Having addressed the empirical research aims, the next section provides a synthesis of the empirical research and proposes the empirically manifested personnel selection model.

8.1.7 Synthesis: constructing a personnel selection model for Zimbabwean organisations

The central hypothesis of this study was that the predictor variables of cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality significantly influence job performance and can be applied in personnel selection contexts. Thus, the different levels of cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality would indicate different levels of job performance. The central hypothesis also assumed that the sociodemographic variables of age, gender, job tenure, and job type would have moderating/interaction effects with ability emotional intelligence, trait emotional intelligence, and personality, in predicting job performance. The central hypothesis further assumed that there would be significant sociodemographic differences in the levels of the predictor variables. These relationships and dynamics between the predictor variables, the sociodemographic (moderating) variables, and the dependent (criterion) variable of job performance were used to construct a personnel selection model.

The bivariate correlations of the four predictor variables (cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality) revealed small to moderate practical effects. Such correlations, together with the good measurement model validity, indicate the absence of multicollinearity, signifying that the predictor variables were

distinct from each other and therefore may fit the criteria of a personnel selection model (Hattrup, 2012; Joseph & Newman, 2010). However, of the four predictor variables of job performance, only trait emotional intelligence failed to significantly predict job performance.

The lack of predictive power of trait emotional intelligence on job performance appears to suggest that trait emotional intelligence should be removed from the empirically manifested personnel selection model. It is interesting, however, to note that trait emotional intelligence (overall scale) had a significant positive correlation with task performance (small practical effect). The trait emotional intelligence subscale (perception of emotion), had a significant positive correlation with both task performance and job performance (total score) (small practical effect). Furthermore, significant mean differences were found in the level of trait emotional intelligence managing others' emotions subscale for the two job types, where employees occupying high emotional labour jobs had higher levels of trait emotional intelligence. Thus, it is the present researcher's view that trait emotional intelligence measures may be useful for identifying other outcomes like relationship management and interpersonal functioning that are important in occupational settings (Joseph & Newman, 2010).

In terms of the predictive power of the other predictor variables, the SEM revealed that cognitive intelligence was the best predictor of job performance, followed by ability emotional intelligence and then, by personality types. The results of the SEM also showed that ability emotional intelligence could not predict job performance in the empirical personnel selection models that did not include cognitive intelligence. The results further revealed that ability emotional intelligence may not add to the incremental validity beyond cognitive intelligence and also that it may not have a compensatory effect on cognitive intelligence in predicting job performance. The insight in the preceding statement seems to disconfirm Cote and Miners' (2006) assertion that ability emotional intelligence can have a compensatory effect on cognitive intelligence in predicting job performance. However, ability emotional intelligence can complement cognitive intelligence by improving the utility of the empirically manifested personnel selection model through the identification of emotionally related competencies that may assist in predicting job performance.

Personality was found to be the third best predictor of job performance, explaining 5% of the variance in job performance (small practical effect).

For industrial psychologists and human resources practitioners, the results indicate that where companies are constrained in terms of resources and time, and have only the predictor variables relevant for the present study as personnel selection measures at their disposal,

they could opt to use only cognitive intelligence. This is because cognitive intelligence can explain up to 65% of the variance in job performance (large practical effect). A combination of cognitive intelligence and ability emotional intelligence may improve job performance by placing people in appropriate job types. Thus, ability emotional intelligence may complement cognitive intelligence by identifying emotionally related characteristics that predict job performance (41% of the variance; large practical effect). Where resources and time still permit, the addition of personality to the personnel selection model may also assist in identifying the personality types that are necessary for job performance, since it was found to predict job performance though at very low levels (accounting 5% of variance; small practical effect). Furthermore, resources and time permitting, trait emotional intelligence tests may be included for personnel selection in order to identify, at the selection stage, the competencies of an interpersonal nature that are important in occupational settings.

As already stated, significant interaction (moderating) effects were only observed between personality and job tenure (judging-perceiving personality types) and job types (extraversion-introversion personality types) in predicting job performance. The significant mean differences of the sociodemographic were observed on age (cognitive intelligence, ability emotional intelligence, and job performance), job tenure (cognitive intelligence and job performance) and job type (ability emotional intelligence and trait emotional intelligence [managing own emotions]).

Having considered the results of the study, the integration and discussion of the research findings, as well as the synthesis of the findings, the empirically manifested personnel selection model is presented in Figure 8.1. Industrial psychologists and human resources practitioners in Zimbabwe and beyond may adopt the personnel selection model for use.

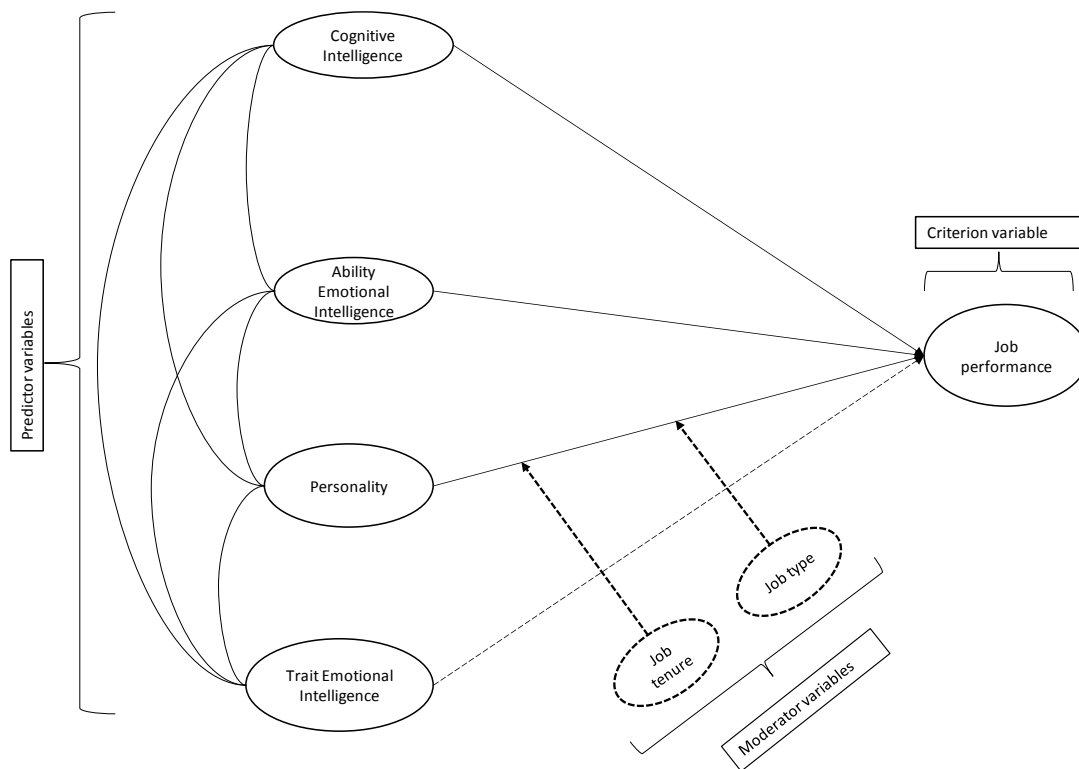


Figure 8.1: Empirically manifested personnel selection model

The present study enhanced personnel psychology theory by providing supportive evidence for the criteria that, in a personnel selection model, predictors should be distinct from each other (Hattrup, 2012). Evidence that cognitive intelligence is the best predictor of job performance, followed by ability emotional intelligence was also advanced (Joseph & Newman, 2010; O'Boyle et al., 2011). Personality was found to be the third best predictor of job performance. From a psychometric perspective, the model also showed good fit with the data. It is the present researcher's view that trait emotional intelligence should be retained in the model. This is because since trait emotional intelligence was significantly correlated with task performance and perception of emotion was significantly correlated with both task and overall job performance, it may be useful for other outcomes like promoting the management of interpersonal relations. Personnel psychology theory was enhanced by identifying the predictor variables that best predict job performance and the sociodemographic variables that may interact with predictor variables in predicting job performance in the Zimbabwean context.

In summary, industrial psychologists and human resources practitioners can adopt the empirically manifested personnel selection model, although more rigorous and further research required. The research findings provided preliminary evidence of the utility of cognitive intelligence, emotional intelligence (ability and trait), and personality and the

interaction (moderating) effects of the sociodemographic variables (age, gender, job tenure, and job type) in predicting job performance.

8.1.8 Decisions concerning the research hypotheses

Table 8.1 below provides a summary of the key conclusions regarding the research hypotheses.

Table 8.1

Summary of the Main Findings Relating to the Research Hypotheses

Research aim	Research hypothesis	Statistical Procedure.	Supportive evidence provided
Research aim 1: To empirically investigate the statistical relationship between cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality, and job performance, as manifested in a sample of respondents in the Zimbabwean organisational environment.	H1: There is a statistically significant positive correlation between each of the predictor variables of cognitive intelligence, trait emotional intelligence, ability emotional intelligence, and personality and the criterion of job performance.	Correlation analysis	Yes
Research aim 2: To determine whether the predictor variables of cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality significantly predict job performance.	H2: The predictor variables of cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality significantly predict job performance.	Structural equation modelling (SEM) and path analysis	Partially supportive evidence

Research aim	Research hypothesis	Statistical Procedure.	Supportive evidence provided
Research aim 3: Based on the statistical relationship between cognitive intelligence, ability emotional intelligence, trait emotional intelligence, personality, and job performance, to determine the elements of the empirically manifested personnel selection model, and how the proposed empirical model compares with the theoretically hypothesised model.	H3: The theoretically hypothesised personnel selection model has a good fit with the empirically manifested personnel selection model.	Structural equation modelling (SEM)	Partially supportive evidence
Research aim 4: To determine whether there are interaction (moderating) effects between the biographical variables (age, gender, job tenure, and job type) and cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality in predicting job performance.	H4: There is a significant interaction effect between the predictor variables (cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality, respectively) and the sociodemographic variables of age, gender, job tenure and job type in predicting job performance.	Stepwise regression and Hierarchical moderated regression analysis	Partially supportive evidence
Research aim 5: To empirically investigate whether individuals from different ages, genders, job tenure, and job types differ with regard to their cognitive intelligence, ability emotional intelligence, and trait emotional intelligence, and levels of job performance.	H5: Individuals from different age, gender, job tenure and job type groups differ significantly regarding their cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality, respective and job performance.	Tests for significant mean differences.	Partially supportive evidence

The following section draws conclusions from the study, discusses its limitations and makes a number of recommendations for industrial psychologists and human resources practitioners for personnel selection practices. The section also suggests areas of future research.

8.2 CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

This section discusses the conclusions and limitations of the literature review and the empirical study. The section also provides industrial psychologists with recommendations for personnel selection practices.

8.2.1 Conclusions

This section discusses the conclusions drawn from the literature review and the empirical study in line with research aims.

8.2.1.1 Conclusions from the literature review

The general aim of the study was to investigate the relationship between cognitive intelligence, emotional intelligence (ability and trait), personality, and job performance and the possible moderating (interaction) effects of age, gender, job tenure, and job type on this relationship for the purpose of proposing a personnel selection model. The study also sought to investigate the implications of such relationships for personnel selection practices.

Research aim 1

- To investigate how the research literature conceptualises personnel selection and job performance in general and in contemporary African and Zimbabwean organisational contexts.

Research aim 1 was achieved in Chapter 2.

(a) Conceptualisation of personnel selection and personnel selection models

Personnel selection was defined as the process of choosing the right candidates for the right jobs (Afshari et al., 2014; Caldwell et al., 2018; Moscoso et al., 2017; Shehu & Saeed, 2016). The aim of personnel selection is therefore to choose people who can significantly contribute

to the organisation's economic value (Caldwell et al., 2018). The utility of different personnel selection methods and measures, which include application forms, the selection interview, personality tests, assessment centres, emotional intelligence tests, and cognitive intelligence tests, was explored. The usefulness of the personnel selection methods and measures as well as the gaps in research were also discussed. The potential moderation of age, gender, job tenure, and job type had to be ascertained from a literature review perspective. Investigating the relationship between the predictor variables and the potential moderation of the sociodemographic variables was essential for the construction of the theoretical personnel selection model.

Moscoso et al. (2017) pointed out that the multi-characteristic nature of a job position requires the combination of different competencies for the purpose of performing the job requirements. This multi-characteristic nature of the job requirements needs a combination of different personnel selection measures. Such a combination of the personnel selection measures for the purpose of predicting job performance constitutes a personnel selection model (Ployhart & Schneider, 2012). The two types of personnel selection models were identified, namely, efficiency and predictive personnel selection models. The efficiency personnel selection models aim to speed up the personnel selection decisions by automating the personnel selection process (Kaluginaa & Shvyduna, 2014; Shehu & Saeed, 2016). On the other hand, the predictive personnel selection models use predictive analyses like regression to determine the relationship between the predictor variables and the job performance criteria (Joseph & Newman, 2010; Ployhart & Schneider, 2012). The proposed theoretical personnel selection model for the present study was predictive in nature and consisted of the predictor variables of cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality. These variables were included in the model because research shows that they have good predictive validity with regard to job performance (Joseph & Newman, 2010).

Personnel selection practices by Zimbabwean organisations were also investigated by way of the literature review. The conclusion was that a majority of Zimbabwean organisations still rely on traditional personnel selection methods like the selection interview, application forms and reference checks (Nguwi, 2014a). It was also noted that some organisations in Zimbabwe engage in nepotism during personnel selection (Dumbu & Chadamoyo, 2012). Thus, the motivation for the study was to suggest a more scientific personnel selection model in order to improve organisational performance capability.

(b) The conceptualisation of job performance

Job performance was defined as the engagement of behaviours that lead to the accomplishment of relevant tasks in order to contribute to the realisation of the economic value for an organisation (Borman & Motowidlo, 2003). The literature on the conceptualisation of job performance as behaviour or as results was also reviewed. Proponents of the behavioural approach argue that if job performance were viewed as ultimate results, it would be difficult to measure it in terms of the behaviours engaged by employees to accomplish the tasks (Motowidlo, 2003). On the other hand, those who advocate for performance as results counter-argue that defining performance as behaviour could be misleading since not all behaviours lead to the contribution of economic value to the organisation (Rich et al., 2010). Thus, for the present study job performance was viewed both as results and behaviour (task and contextual performance).

The other argument was on whether to view job performance as unitary or multifactor. Those who conceptualise job performance as unitary argue that there is a general factor of job performance in supervisory ratings (Schmidt & Hunter, 2004; Viswesvaran et al., 2005). Others argue that job performance is multifactor and considers what is achieved (tasks) and how the tasks are achieved (contextual performance or organisational citizenship behaviours). The present study adopted a multifactor conceptualisation of job performance. In line with the foregoing, the William and Anderson's (1991) job performance scale was adopted for the study. The study thus conceptualised job performance in terms of task performance, organisational citizenship behaviour directed towards the individual (OCBI), and organisational citizenship behaviour directed towards the organisation (OCBO).

The following conclusions can be drawn regarding the sociodemographic variables with regards to job performance:

- Gender: female employees were found to engage more in OCB than males (Allen & Rush, 2001; Farrel & Finkelstein, 2007; Kark & Waismel-Manor, 2005).
- Age: The relationship between age and job performance produced mixed results (Ali & Davies, 2003; Czaja & Sharit, 1998), but recent studies have shown that younger people perform better than older people (Klein et al., 2015).
- Job tenure: Older employees were found to perform better but only because of greater job experience and learning (Schmidt et al., 1986).
- Job type: Better OCB was found in people occupying high emotional labour jobs (Joseph & Newman, 2010; O'Boyle et al, 2011).

Research aim 2

- To investigate the way literature conceptualises the constructs of and relationship dynamics between cognitive intelligence, ability emotional intelligence, trait emotional intelligence personality, and job performance and how this relationship can be explained in a theoretical personnel selection model.

Sub-aim 2.1: To conceptualise the theoretical relationship between cognitive intelligence and job performance

Cognitive intelligence was defined as the ability to think and solve complex problems of a cognitive nature without relying on knowledge or recall (Rindermann, 2007). Cognitive intelligence was also defined as general capability involving planning, reasoning and solving problems, thinking in abstract terms, comprehending ideas of a complex nature, and quickly learning from experience (Gottfredson, 1997). The theories of cognitive intelligence were reviewed, including Spearman's *g* and *s* (Spearman, 1904, 1923, 1927a), Thurstone's primary mental abilities (Thurstone, 1931), Vernon's *g*, *V:ed*, and *k:m* (Vernon, 1950), the structure of intellect (Guilford, 1967), the theory of fluid and crystallised intelligence (Cattell, 1941, 1971), the biological bases of intelligence of Hebb and Luria (Hebb, 1949), the theory of simultaneous and successive processing (Luria, 1966), the information processing theories of intelligence (Campione & Brown, 1978), the three-stratum theory of intelligence (Carroll, 1993), the triarchic theory of intelligence (Sternberg, 1985) and the theory of multiple intelligences (Gardner, 1983, 1993). The conclusions drawn from literature established that most of the above theories are consistent with Spearman's (1904) conceptualisation of cognitive intelligence as consisting of a general factor and specific factors. Accordingly, the study conceptualised cognitive intelligence in terms of the Spearman's general factor (Spearman, 1927b). Cognitive intelligence was measured using the General Ability Measure for Adults (GAMA) (Naglieri & Bardos, 1997). Regarding its usefulness in personnel selection, cognitive intelligence has been found to be the best predictor of job performance across most if not all jobs (Joseph & Newman, 2010; O'Boyle et al., 2011).

The next section makes conclusions for sub-aims 2 and 3.

Sub-aim 2.2: To conceptualise the theoretical relationship between ability emotional intelligence and job performance

Sub-aim 2.3: To conceptualise the theoretical relationship between trait emotional intelligence and job performance

Emotional intelligence was defined as the competence to recognise, generate, understand, express and evaluate own and others' emotions in order to make decisions (Van Rooy & Viswesvaran, 2004). Earlier, Goleman (2001) noted that emotional intelligence involved the skills in the affective domain, as well as skills in the cognitive domain (Goleman, 2001). This has resulted in the definition of emotional intelligence in terms of three theoretical models. These are the ability emotional intelligence model (Mayer et al. 2002; Wong et al., 2004), the trait emotional intelligence models (Petrides et al., 2007; Schutte et al., 2009) and the mixed emotional intelligence model (Bar On, 1998). Petrides et al. (2007) defined trait emotional intelligence as a collection of emotion-related self-perceptions and dispositions located at the lower levels of personality hierarchies. Ability emotional intelligence was defined as the ability to correctly appraise, label and understand emotions evoked by situations for decision-making (Schmidt-Atzert & Bühner, 2002). The difference between trait and ability emotional intelligence is that tests of ability emotional intelligence like the MSCEIT (Mayer et al. 2002) and the WEIS (Wong et al., 2004) are based on correct and wrong answers. The mixed model of emotional intelligence comprises of measures consisting of a combination of trait emotional intelligence and ability emotional intelligence (Austin, 2010). The present study focused only on trait and ability emotional intelligence because the mixed model of emotional intelligence has a loose construct definition (O'Boyle et al., 2011).

Trait emotional intelligence has been found to have a low to moderate relationship with job performance (Schutte et al., 2001; Wu, 2011). The mixed model of emotional intelligence has been found to have a moderate to high relationship with job performance (Cherniss, 2010). Ability emotional intelligence, on the other hand, has been found to have a high relationship with job performance for most occupations (Blickle et al., 2009; Cote & Miners, 2006; Wong et al., 2004).

Sub-aim 2.4: To conceptualise the theoretical relationship between personality and job performance

Personality was conceptualised in terms of the personality types theory of Myers (1987). Myers (1987) proposed that human personality is a product of the two attitudinal orientations of extraversion and introversion and six mental functions of sensing, intuition, feeling, thinking, judging, and perceiving. These attitudes and mental functions combine to produce 16 possible

individual personality types. The different personality types have been found to predict job performance for different occupations (Capretz et al., 2015; Carr et al., 2002; Vincent et al., 2013), but the research is quite scant.

Sub-aim 2.5: To determine whether the sociodemographic variables influence an individual's level of cognitive intelligence, emotional intelligence (ability and trait), and personality and level of job performance

One of the objectives of the literature review was to investigate the influence of the sociodemographic variables of gender, age, job tenure, and job type on cognitive intelligence emotional intelligence (ability and trait), and personality from a literature review perspective. In line with the foregoing, the following conclusions were drawn:

- No age differences have been found in emotional intelligence (ability and trait) (Cote & Miners, 2006; Goldenberg et al. 2006), although age differences have been found in some personality types (Cummings III, 1995; War et al., 2001).
- Gender differences have been found in ability emotional intelligence, trait emotional intelligence, and personality (Furnham et al., 2008; Gilal et al., 2016; Kemp et al., 2005; Mikolajczak et al. 2007; Petrides & Furnham, 2006; Rod et al. 2016) and not in cognitive intelligence and personality.
- No job tenure differences have been found in cognitive intelligence and emotional intelligence (ability and trait) (Cote & Miners, 2006; Danny, 1982; Mayer & Salovey, 1997). Research on the relationship between personality and job performance is a bit scant but an old study by Danny (1982) seems to have revealed some job tenure differences in personality types.
- In terms of job type, trait emotional intelligence was found to be more strongly correlated with job performance in high emotional labour jobs (Joseph & Newman, 2010; O'Boyle et al., 2011; Wong & Law, 2002). Some personality types appear to be suited for certain occupations (Feist & Feist, 2009). No job type differences have been found in ability emotional intelligence and cognitive intelligence (Cote & Miners, 2006).

Research aim 3:

- To investigate the elements of the theoretical model proposed for personnel selection based on the links between cognitive intelligence, ability emotional intelligence, trait

emotional intelligence, personality, and job performance and to determine the implications for personnel selection practices.

Based on the conclusions drawn with regard to the research aims discussed so far, the theoretical personnel selection model presented in Figure 5.1 in Chapter 5 was constructed.

The following conclusions were drawn regarding the predictive power of the elements of the theoretical personnel selection model and their implications for personnel selection:

(a) Conclusions on the relationship between the predictor elements of the proposed theoretical personnel selection model

Meta-analyses conducted by Joseph and Newman (2010) and O'Boyle et al. (2011) showed a weak relationship between cognitive intelligence, ability emotional intelligence and trait emotional intelligence. Weak to moderate relationships have been found for some personality types like thinking–feeling and judging–perceiving with cognitive intelligence (crystallised and fluid intelligence) (Furnham et al., 2007). This indicates that the constructs are theoretically distinct.

(b) Conclusions on the predictive power of elements of the personnel selection model and their implications for personnel selection

- Cognitive intelligence seems to be the best predictor of job performance.
- Ability emotional intelligence appears to be the second best predictor of job performance but has low incremental validity beyond cognitive intelligence.
- Trait emotional intelligence seems to be the third best predictor of job performance, but has better incremental validity beyond cognitive intelligence.
- Personality types have the least predictive power on job performance.

(c) Conclusions regarding the sociodemographic variables and their implications for personnel selection

- Gender, job type and job tenure may moderate the influence of emotional intelligence (ability and trait) and personality on job performance.
- Job type and age may moderate the influence of personality on job performance.

- Age, gender, job tenure, and job type do not moderate the relationship between cognitive intelligence and job performance, thus positioning cognitive intelligence as the most stable predictor of job performance.

Having completed the discussion on conclusion drawn from the literature review, the following section discusses conclusions drawn from the empirical study.

8.2.1.2 Conclusions from the empirical study

The following are the conclusions drawn for the research aims of the empirical study:

Research aim 1:

To empirically investigate the statistical relationship between cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality, and job performance, as manifested in a sample of respondents in the Zimbabwean organisational environment.

This research aim was achieved in Chapter 7, which provided supportive evidence for research hypothesis H1.

Based on the results of the empirical study, either the overall scales of the predictor variables, or some or all of the subscales of the predictor variables had a significant positive correlation with job performance. Thus, one can conclude that investigating the predictive power of the various scales may be useful to explore because of the associations observed between the variables, especially the relationships between the predictor and criterion variables.

Research aim 2 and Research aim 3:

To determine whether the predictor variables of cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality significantly predict job performance (Research aim 2).

Based on the statistical relationship between cognitive intelligence, ability emotional intelligence, trait emotional intelligence, personality, and job performance, to determine the elements of the empirically manifested personnel selection model, and how the proposed empirical model compares with the theoretically hypothesised model (Research aim 3).

These research aims were achieved in Chapter 7, which partially provided supportive evidence for research hypotheses H2 and H3.

Based on the research findings, the following conclusions can be drawn:

- Cognitive intelligence combined with ability emotional intelligence measures are useful to include in a personnel selection model. Personality may add additional value to such a model, although the practical effect is very small.
- Ability emotional intelligence becomes a significant predictor of job performance only if it is paired with cognitive intelligence.
- Personality may add value in terms of developmental purposes for type preferences more than actual prediction of job performance.
- Trait emotional intelligence does not predict job performance.
- The empirically manifested prediction model that emerged in the study showed good model fit with the data and may serve as a good basis for further research in the personnel selection contexts of Zimbabwean organisations.

Research aim 4:

To determine whether there are interaction (moderating) effects between the sociodemographic variables (age, gender, job tenure, and job type) and cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality in predicting job performance.

This research aim was achieved in Chapter 7, which partly provided supportive evidence for research hypothesis H4. The results from the empirical study revealed the following:

Significant interaction effects were only found on personality (extroversion-introversion and job type, and judging-perceiving and job tenure, respectively) in predicting job performance. Specifically, the following two conclusions can be made:

- For people with both the extraverted and introverted personality types, their performance on the job is conditional on whether they occupy high or low emotional jobs.

- For people with both the judging and perceiving personality types, their performance on the job is conditional on their job tenure.

Research aim 5:

To empirically investigate whether individuals from different age, gender, job tenure, and job type groups differ with regard to their cognitive intelligence, ability emotional intelligence, and trait emotional intelligence, and levels of job performance.

This research aim was achieved in Chapter 7, which partially provided supportive evidence for research hypothesis H5. Based on the results of the empirical study, the following conclusions can be made:

- Younger people tend to score significantly higher than their older counterparts on cognitive intelligence and job performance, while older people tend to score significantly higher than the younger people in ability emotional intelligence.
- People in high emotional labour jobs tend to score significantly higher than those in low emotional labour jobs on overall ability emotional intelligence and trait emotional intelligence (managing own emotions).

The next section discusses conclusions regarding the central hypothesis.

8.2.2 Conclusions regarding the central hypothesis

The central hypothesis of the study was formulated as follows:

Cognitive intelligence, emotional intelligence (ability and trait), and personality significantly influence job performance and can be applied in the personnel selection context. Thus, the different levels of cognitive intelligence, emotional intelligence, and personality will indicate different levels of job performance. The central hypothesis assumed that there is a significant interaction effect between the predictor variables ([1] cognitive intelligence, [2] emotional intelligence [ability and trait], and [4] personality, respectively) and the sociodemographic variables of age, gender, job tenure, and job type in predicting job performance. The other assumption of the central hypothesis was that, individuals from different age, gender, job tenure, and job type groups differ significantly regarding their cognitive intelligence, emotional intelligence (ability and trait), and personality.

The central hypothesis assumed that the predictive power of the variables are arranged from the best to the least predictor as follows:

Cognitive intelligence, ability emotional intelligence, trait emotional intelligence, personality

The research results provided partial evidence in support of accepting the central research hypothesis. Therefore, the core conclusions regarding the central hypothesis are as follows:

- Of the four predictor variables for the study, only cognitive intelligence (large practical effect), ability emotional intelligence (large practical effect), and personality (small practical effect) significantly predict job performance.
- Cognitive intelligence is not only the best predictor, but also the most stable predictor of job performance owing the highest variance in job performance explained and the absence of interaction effects from the sociodemographic variables.
- Personality predicts job performance with a small practical effect and is better suited for the identification of personnel development needs at the personnel selection stage rather than being strictly used for predictive purposes.
- The two best predictors of job performance (cognitive and ability emotional intelligence) had significant age differences in an opposing pattern. While younger people had high levels of cognitive intelligence, older people exhibited high ability emotional intelligence, but both predictors predicted job performance with large practical effect. The implications of this conclusion are discussed more in the recommendations section of this chapter.
- The interaction effects do exist between personality and job tenure (judging-perceiving personality types) and job types (extraversion-introversion personality types) in predicting job performance. In the same vein, it can also be concluded that there are no interaction effects between cognitive intelligence, ability emotional intelligence, and trait emotional intelligence, respectively, and the sociodemographic variables in predicting job performance.
- The sociodemographic differences do exist on age (cognitive intelligence, ability emotional intelligence, and job performance), job tenure (cognitive intelligence and job performance), and job type (ability emotional intelligence and trait emotional intelligence [managing own emotions]). It can also be concluded that there are no significant gender differences in the levels of the predictor variables investigated by the study. In terms of the

sociodemographic differences, research on structural equivalence of the scales is required to ascertain the true nature of the differences.

8.2.3 Conclusions relating to the field of Industrial and Organisational Psychology

Both the outcomes from the literature review and the empirical study should contribute to the field of Industrial and Organisational Psychology. The literature review conducted on the meta-theoretical concepts relevant to the study provided insights into the conceptualisation of personnel selection, personnel selection models, and job performance. The literature on the predictor variables of cognitive intelligence, emotional intelligence (ability and trait), and personality provided a clear conceptualisation of the variables, the relationships between these variables, and the predictive power of the variables on job performance. The role of personality types in personnel selection contexts was also explored. The relationship between the sociodemographic variables and the predictor variables was also investigated from a theoretical perspective. This was done to determine whether the sociodemographic variables moderate the relationship between predictor variables job performance. The review of the literature culminated in the formulation of a theoretical personnel selection model, which provided theoretical insights into the field of Industrial and Organisational Psychology in the following respects:

- Cognitive intelligence is the best single predictor of job performance, followed by ability emotional intelligence, then by trait emotional intelligence, and lastly, by personality.
- Job performance can be classified into task and contextual performance (OCBI and OCBO) (Motowidlo, 2003).
- The different levels of the predictive power of the independent variables for job performance and the incremental validities and potential redundancies of the predictors should guide industrial psychologists on the best predictors to use for personnel selection purposes.
- The potential interaction (moderating) effects of the sociodemographic variables with the predictor variables in predicting job performance should also guide psychologists in personnel selection practices in terms of the sociodemographic variables that can enhance or inhibit job performance.
- The sociodemographic differences in the levels of the predictor variables present challenges of fairness and bias for the personnel selection practices.

- The multi-criteria conceptualisation of job performance should provide insights into the relationships of different predictors with the different criteria of job performance (task performance, OCBO, and OCBI).

The following conclusions can therefore be made for the field of Industrial and Organisational Psychology regarding the empirical study:

- In terms of the predictive power of the measures, cognitive intelligence is the best predictor of job performance followed by ability emotional intelligence and then by personality. Trait emotional intelligence does not predict job performance. Personality predicts job performance with a small practical effect.
- From the foregoing paragraph and in line with prior research (Joseph & Newman, 2010; O'Boyle et al., 2011), it can be concluded that since cognitive intelligence is the best and most stable predictor of job performance, it should be confidently used by industrial psychologists.
- Ability emotional intelligence does not have incremental validity beyond cognitive intelligence, suggesting that it cannot compensate for cognitive intelligence. This is contrary to some scholars like Cote and Miners (2006).
- Using a multi-measure personnel selection model improves the predictive validity where some measures which would otherwise not be able to predict job performance on their own may become valid predictors because of the effect of being paired with other predictors. For example, ability emotional intelligence on its own may not predict job performance but may need to be complemented by cognitive intelligence for it to significantly predict job performance.
- The interaction between personality (extraversion-introversion and judging-perceiving) and the sociodemographic variables (job tenure and job type) can be described in an inverse relationship, consistent with the three main principles of the analytical paradigm (principles of opposites, entropy, and equivalency) (Jung, 1921, 1959). For example, the research findings showed that older people with a judging personality type perform better on the job than younger people with a judging personality type. Inversely, and on the opposite pole, young people with a perceiving personality type may perform better on the job than older people with a perceiving personality type. In a similar pattern, extraverted people in high emotional labour jobs perform better than introverted people in high emotional labour jobs. On the other hand, introverted people in low emotional labour jobs perform better than extraverted people in low emotional labour jobs.

- Some sociodemographic differences in the measures of personnel selection do exist. This information is important in assisting the prevention of adverse impact resulting from the sociodemographic differences (cognitive and emotional intelligence) and for performance improvement interventions for certain sociodemographic groupings.

8.3 LIMITATIONS

This section discusses limitations of both the literature review and the empirical study

8.3.1 Limitations of the literature review

The literature review was limited in the following respects:

- There may be many personnel selection methods and measures or predictors of job performance. For this study, the theoretical personnel selection model focused only on the four predictor variables, namely, cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality. Thus, the study did not include an exhaustive list of predictor variables.
- Age, gender, job tenure, and job type were the only sociodemographic variables for the study. The study did not investigate the potential moderation of other sociodemographic variables on the relationship between the predictor variables and job performance.
- While several studies have been conducted on the influence of cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality on job performance, little research has been conducted in the Zimbabwean organisational environment to provide relevant reference literature.

8.3.2 Limitations of the empirical study

The following are the limitations of the empirical study:

- The sample consisted of 299 respondents. Accordingly, a larger sample may be required to obtain a better picture of the influence of cognitive intelligence, emotional intelligence (ability and trait), and personality on job performance.
- Participation in the study was voluntary. The research targeted supervisory staff, professionally qualified and experienced specialists, and middle management employees

as research participants. However, middle management employees did not participate, limiting the generalisability of the research findings. Including respondents from all occupational levels might yield a better picture of the explanatory power of the predictor variables on job performance.

- Trait emotional intelligence and personality were measured using self-reports which may be prone to impression management. Impression management may prejudice the validity of the results.
- The reliability of the measure of ability emotional intelligence (WEIS) was low and therefore, limited the interpretation of the research findings.
- There are a number of predictor variables for job performance but the present study only focused on cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality. This limited the interpretation of the research findings to only the four.
- The sociodemographic variables were limited to age, gender, job tenure, and job type. There are other sociodemographic variables that may also moderate the relationship between the predictor variables and the criterion of job performance.
- For future research, performing multi-group mean difference comparisons and confirmatory factor analyses to test the structural equivalence of the various scales for age, gender, job tenure, and job type could assist in producing more valid and reliable conclusions from group comparisons. This might also address issues pertaining to fairness and bias.
- The study followed a cross-sectional research design. Longitudinal studies could assist in controlling research variables and understanding the true picture of the relationship between the predictor and the criterion variables over a period.

8.4 RECOMMENDATIONS

This section makes a number of recommendations for the field of Industrial and Organisational Psychology as well as recommendations for future research.

8.4.1 Recommendations for the field of Industrial and Organisational Psychology

The outcomes of the empirical research may contribute to the field of Industrial and Organisational Psychology in general and to personnel selection practices in particular in the following ways:

- Organisations should be made aware of the predictive power of the different psychological measures used in personnel selection. When selecting people to fill job vacancies, industrial psychologists should consider first, assessing the job candidates' level of cognitive intelligence (explaining 65% of variance in job performance [large practical effect]), followed by ability emotional intelligence (explaining 41% of variance in job performance [large practical effect]), and then by personality (explaining 5% of variance in job performance [small practical effect]). Industrial psychologists should however be mindful that while a combination of cognitive intelligence and ability emotional intelligence may present a personnel selection model with good predictive validity, ability emotional intelligence on its own may not be able to predict job performance. Industrial psychologists should also note that trait emotional intelligence does not predict job performance.
- The fact that personality types only accounted for 5% of the variance in job performance (small practical effect) may not place the personality as strong predictor of job performance per se. Rather industrial psychologists should consider using results from personality types assessment to identify personnel development needs. The development needs ought to be identified at the personnel selection stage to ensure the closest person job fit.
- Understanding the interaction effects between the sociodemographic variables and predictor variables in predicting job performance is crucial for organisations. When assessing people's personality for the purposes of personnel selection, industrial psychologists are advised that, given certain personality types, job performance is conditional on whether the people belong to certain sociodemographic groupings. From the foregoing, the study revealed that job performance for both extraverted and introverted people is conditional on their job type. Furthermore, for both the judging and perceiving personality types, job performance is conditional on job tenure. These insights should be considered in the placement of people onto jobs.
- The significant sociodemographic mean differences in the levels of the predictor variables have implications for the practice of industrial psychology. The study revealed that younger people scored significantly higher than older people did on cognitive intelligence. Also, older people scored significantly higher than younger people on ability emotional intelligence. Differential norming of cognitive and ability emotional intelligence measures is therefore recommended. Failure to norm the measures may disadvantage people from certain sociodemographic groupings. Similarly, the significant mean differences in emotional intelligence, where participants in high emotional labour jobs scored higher than those in low emotional labour jobs on ability and trait emotional intelligence (managing own emotions) also calls for differential norming of tests by job type. Lastly, the fact that younger people scored significantly higher than older people on job performance requires

industrial psychologists to further investigate the causes of the differences in order to implement performance capability improvement initiatives for older people.

- The use of multi-criteria personnel selection and job performance measures offers recommendation opportunities for organisations. For the present study, all the predictor variables and the criteria of job performance consisted of the overall scales and subscales. This assists in providing more insight into the relationships between the overall predictor variable scales and subscales, and the job performance criteria. For example, it may be interesting to note that cognitive intelligence correlates more strongly with task performance than contextual performance (OCBI and OCBO). Organisations should therefore be guided accordingly in choosing personnel selection measures that are most appropriate for the relevant job performance criteria.
- The results of the low to weak bivariate correlations between the predictor variables as well as the measurement model validity present opportunities for recommendations. Industrial psychologists should understand both the construct validity and the relationships between the measures constituting their personnel selection models. Such understanding is expected to assist in avoiding issues of multicollinearity. Multicollinearity may render some measures redundant with each other. Using redundant measures in a personnel selection model may lead to the misallocation of resources and time, resulting from using non-value add personnel selection measures.
- Understanding the psychometric properties of personnel selection measures is important. For the present study, the relevant variables were assessed in terms of reliability and validity. Organisations are therefore advised to use only valid and reliable measures of personnel selection for them to guarantee the fidelity of their personnel selection practices.

8.4.2 Recommendations for future research

The following recommendations are made for future research:

- The sample for the present study was 299 and consisted of only supervisory, professionally qualified and experienced specialists. Future research should explore the possibility of including a wide range of occupational levels to obtain more insights on the influence of the sociodemographic variables on the relationship between the predictor variables and job performance.
- There were some serendipitous discoveries on the relationship between some sociodemographic variables and job performance. Future research should deliberately focus on the influence of sociodemographic variables on the job performance criteria.

- The moderation of, and the sociodemographic differences in the level of the predictor variables were limited to age, gender, job tenure, and job type. Future research should include more sociodemographic variables and their influence on job performance.
- The present study was cross sectional by design. Future research may consider adopting longitudinal studies to gain more understanding of the behaviour of variables across life spans.
- In terms of the criteria related to fairness and bias against the sociodemographic groupings, future research should focus on multi-group confirmatory factor analyses to test the structural equivalence of the various scales of age, gender, age, job type, job tenure and other sociodemographic groups. This will ensure that valid and reliable conclusions from group comparisons can be drawn based on tests of differences.

8.5 EVALUATION

This section provides the value addition of the study from theoretical, empirical and practical levels, as well as acritical evaluation of doctorateness.

8.5.1 Value added on a theoretical level

From a theoretical perspective, the present study contributed to an understanding of the meta-theoretical concepts of personnel selection and job performance. A review of the literature resulted in a deeper understanding of the meta-concept of job performance in terms of its criteria (unitary versus multifactor; behaviour versus results; task performance versus contextual performance). These insights allowed the researcher to choose the best conceptualisation of job performance to use in this study. A further review of the literature on personnel selection and personnel selection models also contributed to a theoretical understanding of the different predictive powers of the different personnel selection measures. From a Zimbabwean perspective, the literature review on personnel selection assisted in understanding the personnel selection practices for the country, where little has been documented.

The theoretical definition of the predictor variables of cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality and their related predictive validities assisted in understanding the predictive powers of the various personnel selection measures. Also, the theoretical definition of the relevant sociodemographic variables of age, gender, job tenure, and job type, together with their relationship with the predictor variables and job

performance assisted in understanding their potential interaction with the predictor variables in predicting job performance. The sociodemographic differences in the level of the predictor variables also assisted in understanding the relationship between the predictor and the sociodemographic variables.

The literature reviewed on the relevant meta-theoretical concepts, the predictor variables, the criteria for job performance, and the sociodemographic variables assisted in the construction of the theoretical personnel selection model. The theoretical personnel selection model provided the basis for comparison with the empirically manifested personnel selection model.

8.5.2 Value added on an empirical level

From an empirical point of view, the present study contributed by proposing a personnel selection model encompassing the influence of cognitive intelligence, emotional intelligence (ability and trait), and personality on job performance. The proposed empirically manifested personnel selection model was constructed using original data and has good psychometric properties in terms of reliability and validity (construct and predictive).

Apart from predictive validity of the model, the study also revealed the influence (interaction/moderation) of the sociodemographic variables on the predictor variables, in predicting job performance. It is maintained that this model can be adopted by Zimbabwean organisations and beyond. The study revealed that cognitive intelligence is the best predictor of job performance, confirming extensive meta-analyses (Joseph & Newman, 2010; O'Boyle et al., 2011). The study also revealed significant sociodemographic differences in the levels of the predictor variables and the interaction of the sociodemographic with the predictor variables in predicting job performance. This serves to alert psychologists of the need to exercise caution when using the measure concerned.

The present research may be the first study of its kind in Zimbabwe, where the influence of cognitive intelligence, emotional intelligence (ability and trait), and personality on job performance, together with the moderation of the sociodemographic variables in that relationship have been conducted in a single study. Through the use of numerous and sophisticated statistical analyses, the research offers results with good fidelity in explaining the predictor, moderating, and criterion variables that may assist organisations in improving the effectiveness of their personnel selection models.

In terms of advancing the personnel selection theory, it was found that ability emotional intelligence can neither predict job performance at the same level with cognitive intelligence nor does it have incremental validity beyond, and compensatory effects on cognitive intelligence in predicting job performance. This is expected to guide researchers and practitioners accordingly.

Research on the application of the MBTI personality types in personnel selection contexts has been generally scant (Feist & Feist, 2009). The present research revealed that the thinking and feeling personality types may actually have a relationship with overall job performance and OCBO, albeit with small practical effect. This positions personality types as an alternative personnel selection measure at the disposal of industrial psychologists.

Although prior research suggests that the relationship between trait emotional intelligence and job performance was weak to moderate (Wu, 2011; Schutte, et al., 2001), the present study showed the lack of empirical predictive utility of trait emotional intelligence in explaining the variance in job performance. Nevertheless, industrial psychologists can use trait emotional intelligence measures to identify the emotional competencies necessary for group functioning at the personnel selection stage. This is because overall trait emotional intelligence was significantly positively correlated with task performance. In addition, the perception of emotion subscale was significantly positively correlated with both overall job performance and task performance.

8.5.3 Value added on a practical level

The results of the research contributed to the field of industrial psychology and human resources practice by offering a practical and empirically tested personnel selection model for adoption by organisations. The study provided insights into the predictive validities of cognitive intelligence, emotional intelligence (ability and trait), and personality. When time and resources are limited, industrial psychologists and human resources practitioners should have awareness of the best measures (in their order of predictive validities) to use that will take the shortest time possible and that will have high fidelity in predicting job performance.

At a practical level, organisations may now be aware of how the combination of different personnel selection measures may improve or diminish the predictive power of a personnel selection model. For example, it was demonstrated that a combination of ability and trait emotional intelligence might not significantly predict job performance. In addition, it was also

demonstrated that ability emotional intelligence needs to be paired with cognitive intelligence for it to significantly predict job performance.

The results on the interrelationships between the predictor and criterion measures (and their subscales) may assist industrial psychologists in choosing the best overall measures or subscales in respect of their relationship with the job performance criteria (task performance, OCBI, or OCBO).

As already stated, the research results showed that for some personality types, job performance was conditional on some sociodemographic variables. The interaction between the sociodemographic and the predictor variables in predicting job performance could assist industrial psychologists in understanding how the sociodemographic factors may enhance or inhibit job performance, given certain personnel selection measures.

The results on the sociodemographic differences regarding the levels of the predictor variables should enable industrial psychologists to put in place mechanisms to prevent biases against certain sociodemographic groupings. The prevention of such biases becomes important in countries like Zimbabwe, where the law prohibits discrimination based on sociodemographic status (Labour Act, Chapter 28:01, 2005).

It seems that not much has been written about the personnel selection practices and development of personnel selection models in Zimbabwe. Thus, the research offers practical information on personnel selection practices and theory for reference by organisations and researchers.

In summary, the outcomes of this study are expected to provide an informed and deeper understanding of the relationships between the predictor variables and the criterion variable, as well as the potential interaction effects between the predictor and the sociodemographic variables in predicting job performance. Such deeper knowledge may inform better personnel selection practices. The present researcher hopes that the findings of this study, as well as the conclusions, and recommendations for future research, will be viewed constructively and will contribute to the field of industrial and organisational psychology in the Zimbabwean organisational environment and beyond.

8.5.4 Critical evaluation of doctorateness

Through extensive research and review of the literature from across the world, the researcher gained more in-depth knowledge and understanding of the conceptualisation of the predictor constructs of cognitive intelligence, emotional intelligence (ability and trait), and personality. In the same vein, the researcher also gained a deeper understanding of the conceptualisation of job performance and personnel selection. From the literature review, and in predicting job performance, the research also revealed the interaction (moderating) effects of the sociodemographic variables with the predictor variables. The researcher was exposed to advanced and sophisticated statistical analyses at the highest levels pertaining to the construct and the predictive validities of the variables relevant to the study. From an empirical perspective, the researcher gained a holistic view of the predictors of job performance, and the job performance criteria, as well as how these variables impact the process of personnel selection practices for Zimbabwean organisations in particular, and perhaps African and world organisations in general.

In terms of the literature review and the empirical study, the researcher (as an industrial psychologist) proposed his own personnel selection model for use by organisations. The personnel selection model could possibly be the first empirical model of its kind within the industrial and organisational research and practice community. The researcher, therefore, gained a deeper understanding and specialised knowledge of developing fit-for-purpose personnel selection tools and models for use by organisations. The researcher also gained insights and skills in planning, organising and networking, as well as executing research interventions, and building resilience and perseverance, which are required for the execution of doctoral and postdoctoral research studies.

As a PhD student, the researcher carried out empirical research on real issues affecting organisations using sophisticated statistical analyses. Against this background, the researcher can confidently consult within and offer advice to organisations pertaining to personnel selection practices. With the experience gained, the researcher intends to publish books as well as research articles in professional journals.

8.6 CHAPTER SUMMARY

In this chapter, the research results were integrated and discussed. The empirically manifested personnel selection model was also presented. The researcher made certain conclusions from the study with regard to the research aims in terms of both the literature review and the empirical study. The limitations of the research regarding the literature review and the empirical study were also discussed. The chapter provided recommendations for the

field of industrial and organisational psychology and for future research with regard to the influence of cognitive intelligence, emotional intelligence (ability and trait), and personality on job performance, and the moderating effects of the sociodemographic variables of age, gender, job tenure, and job type on the relationship. The chapter ended by evaluating the study regarding its value-add to the field of industrial and organisational psychology at the theoretical, empirical, and practical levels. A critical evaluation of the doctorateness of the study was also provided.

The following research aim was achieved in Chapter 8:

Research aim 6: To make recommendations for personnel psychology practices regarding the use of cognitive intelligence, ability emotional intelligence, trait emotional intelligence, and personality measures for personnel selection, and suggest areas for possible future research based on the findings of this research.

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LIST OF APPENDICES

APPENDIX 1: UNISA ETHICAL CLEARANCE

DEPARTMENT OF INDUSTRIAL AND ORGANISATIONAL PSYCHOLOGY

Dear Pfungwa Dhliwayo

Student no: 47191961

RE: APPLICATION FOR RESEARCH ETHICAL CLEARANCE

This serves to confirm that your application for ethical clearance regarding your research project, **The influence of cognitive intelligence, emotional intelligence, and personality on job performance: Proposing a model for personnel selection**, has been approved at Departmental level as per university guidelines and requirements.

Your documents will be forwarded to the College of Economic Management Science: Research Ethics Committee for record-keeping purposes.

For more information you can contact Dr Ophillia Ledimo at 012 429 8219 or email at manetom@unisa.ac.za

We wish you well with your research project.

Kind regards



Dr O M Ledimo

(On behalf of the IOP Department Ethics Committee)

APPENDIX 2: PERMISSION CERTIFICATES



Sable House, Northridge Close, P.O. Box BW294, Harare, Zimbabwe;
Tel: 263-4-883865/72, Fax: 263-4-883864 Website: www.delta.co.zw

26 June 2017

Mr P Dhliwayo
Group Human Resources Executive
First Mutual Holdings Limited
HARARE

Dear Pfungwa

REQUEST TO CONDUCT A RESEARCH STUDY WITHIN DELTA CORPORATION

I am pleased to inform you that your request to conduct a Research Study within Delta has been granted. The permission is subject to the following conditions:

1. That Delta Corporation is given a copy of the final document.
2. That the information you obtain from Delta is used only for academic purposes only. The information (factual or implied) should never be divulged to the public or made public.
3. That Delta has the right to break this relationship as and when the above conditions have been violated.

Wish you the best of luck in your academic endeavors.

Yours sincerely

For and on behalf of Delta Corporation

A handwritten signature in blue ink, appearing to read "M. Pemhiwa", is written over a faint, light blue horizontal line.

M. Pemhiwa
Human Resources Director



28 Simon Mazorodze Road, P O Box 66043, Harare, Zimbabwe; Tel +26324754666/7 24 755878; Email
admin@tsl.co.zw. Website: www.tsl.co.zw

5 June 2017

Dear Pfungwa

RE: Research Request

We advise that your request to carry out your research, "The influence of cognitive intelligence, emotional intelligence and personality on job performance: Proposing a model for personnel selection", has been approved.

Please ensure that you furnish us with the final report once done and that you treat the information about our organisation and staff confidentially.

Please contact the undersigned if you have queries.

Regards,

A handwritten signature in blue ink, appearing to read 'E. Nharire', written over a faint blue circular stamp.

E. Nharire
Group HR Executive
TSL Group

FIRST MUTUAL

HOLDINGS LIMITED

Go Beyond

LIFE | HEALTH | INSURANCE | REINSURANCE | SAVINGS | PROPERTY

FIRST MUTUAL HOLDINGS LIMITED, First Mutual Park, 100 Borrowdale Road, Borrowdale, Harare, Zimbabwe | P O Box 8W 178, Borrowdale, Harare.

Tel: +263 (4) 886000 - 17 | E-mail: info@firstmutualholdings.com | Website: www.firstmutualholdings.com

5 June 2017

Dear Pfungwa

RE: Research Request

We hear by approve your research request for the First Mutual Group and its subsidiaries. Please note that the request has been approved for the following topic, only being studied with at UNISA:

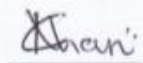
The influence of cognitive intelligence, emotional intelligence and personality on job performance: Proposing a model for personnel selection

Please ensure that:

1. You provide us with your final research thesis.
2. You provide developmental reports to participants as stated in your request.
3. You treat the information you obtain with strictest confidence.

Please contact the undersigned should you have questions.

Regards,



C. Nhari
Human Resources Business Partner



Corner Hampden Street and Samora Machel Avenue | Harare Tel - +2634780130

6 February 2017

Dear Pfungwa

RE: Request to use Telone CFL learners for research

We inform you that your research request has been approved.

As promised kindly send us your dissertation once you finalise. You are also advised to treat the information about our company and employees confidentially.

We wish you the best in your research.

Sincerely,

A handwritten signature in black ink, appearing to read "C. Chiketa".

C. Chiketa

General Manager - CFL

APPENDIX 3: DEMOGRAPHIC VARIABLES QUESTIONNAIRE

Demographic Information Sheet			
Date of Testing	dd	mm	yy
Name of your Organisation _____			
Surname _____		First Name (s) _____	
Grade _____	Gender _____	Age _____	
Job Title _____			
Your Superior's Name _____		Your Superior's email address _____	
Your Superior's cell number _____			
Employment status (mark with x) Permanent <input type="checkbox"/> Contract <input type="checkbox"/> Part-time <input type="checkbox"/>			
Nationality _____			
Race (e.g. African) _____		First/Vernacular Language _____	
What is your total job tenure/experience on your current job? _____ years _____ Months			
What is your total job tenure/experience in this company? _____ years _____ Months			
What is your total job tenure/experience within and outside this company? _____ years _____ Months			
List your two highest educational/professional qualifications (from highest to lowest).			
Qualification		Level	
<i>e.g., Master of Business Administration</i>		<i>e.g., Postgraduate Degree</i>	
<i>e.g., Bsc. Hon Engineering</i>		<i>e.g., Degree</i>	
_____		_____	
_____		_____	

APPENDIX 4 : INFORMED CONSENT LETTER - EMPLOYEES

Dear Candidate

RE: The influence of cognitive intelligence, emotional intelligence and personality on job performance: Proposing an integrated model of personnel selection for Zimbabwean organisations.

I am conducting research towards a Doctoral Degree in Consulting Psychology at the University of South Africa (UNISA). It would be greatly appreciated if you would be willing to participate in my research by completing four short tests.

The purpose of the study

The aim of this study is to explore influence of cognitive intelligence, emotional intelligence and personality on job performance as well as the moderation of age, gender, job tenure, and job type on the relationship. The ultimate aim is to propose an integrated model of personnel selection for Zimbabwean organisations, specifically informing organisations on which psychological constructs contribute most to job performance. This is expected to reduce the cost of hiring for organisations. The results of this study will be utilised for dissertation purposes and may be included in a scientific journal.

Your participation

As the study focuses on people employed in Zimbabwean organisations at supervisory levels up to head of department, it would be greatly appreciated if you participate as this would contribute to the representativeness of the sample, which increases the generalisability of the study. Consent has been obtained from management within your employing organisation. Your participation in this research is however voluntary and you are free to refuse to participate in this study without offering any explanation.

Note that as part of the study, your supervisors will be asked to complete a 21-item questionnaire measuring your general job performance. This information will then be correlated with results of the tests.

Confidentiality

Your name, individual results and the particular organisation which you belong to will **remain confidential** at all times. No one outside of the research team will have access to the

information, this includes anyone from your organisation. In instances where sociodemographic groups are small enough for individual respondents to be identified, these groups will be merged into larger groups in order to maintain confidentiality. The researchers will maintain confidentiality within the research team, and the findings from the study will be presented in a report where only the general patterns found in the results will be discussed. Individual results will not be reported on.

After the study has been completed you will receive an individualised report on the tests for your personal development if you wish. Your participating organisation will be provided with an overall summary of the study's results in the form of a scientific article.

It is not anticipated that participating in the study will harm you in any way. However, should you require further information or have any concerns please feel free to contact me.

Faithfully

Pfungwa Dhlwayo

(Cell 0772 413 947, Email: pfungwad@gmail.com)

Email: pfungwad@gmail.com

AGREEMENT TO PARTICIPATE IN RESEARCH PROJECT

Name:

Phone number:

E-mail address:

I, agree to participate in this research, which is being conducted by Pfungwa Dhlwayo, as outlined in the accompanying letter above.

I clearly understand that:

- the information gathered from the completed questionnaires and tests will be used for research purposes only, and
- the information concerning me will be treated as confidential and will not be made available to any other person, including members within my organisation.

Signed

Date

APPENDIX 5: INFORMED CONSENT LETTER – SUPERVISORS

Dear <Supervisor>

RE: The influence of cognitive intelligence, emotional intelligence and personality on job performance: Proposing an integrated model of personnel selection for Zimbabwean organisations.

I am conducting research towards a Doctoral Degree in Consulting Psychology at the University of South Africa. It would be greatly appreciated if you would be willing to participate in my research by **completing a five-minute job performance scale**.

The purpose of the study

The aim of this study is to explore influence of cognitive intelligence, emotional intelligence and personality on job performance as well as the moderation of age, gender, job tenure, and job type on the relationship. I have already collected information about <name of candidate>'s cognitive intelligence, emotional intelligence and personality. The next step is to obtain < name of candidate >'s performance data using the performance scale overleaf. You are therefore asked to complete the job performance scale overleaf. Once you provide the job performance information, the next step will be to correlate cognitive intelligence, emotional intelligence and personality with job performance in order to determine the psychological constructs with the highest positive correlation with job performance and therefore best predicts job performance.

The ultimate aim is to propose an integrated model of personnel selection for Zimbabwean organisations, specifically informing organisations on which psychological constructs contribute most to job performance. This is expected to reduce the cost of hiring for organisations since organisations will only focus on assessing psychological constructs which best predict job performance. The results of this study will be utilised for dissertation purposes and may be included in a scientific journal.

Your participation

Consent has been obtained from your organisation (see attached letter). Your participation in this research is however voluntary and you are free to refuse to participate in this study without offering any explanation.

Confidentiality

Your name, individual results and the particular organisation which you belong to will **remain confidential** at all times. The findings from the study will be presented in a report where only

general patterns found in the results will be discussed. Individual results will not be reported on.

It is not anticipated that participating in the study will harm you in any way. However, should you require further information or have any concerns please feel free to contact me on the details provided below

Faithfully,

Pfungwa Dhliwayo

(Cell 0772 413 947, Email: pfungwad@gmail.com)